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Annual Report
of the
Medical Department
for the year ended 31st December
1948

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TANGANYIKA

Annual Report of the Medical Department for the year 1948

I.—STAFF

The Director was on leave from the 31st January until the 23rd September; the substantive Deputy Director (Dr. A. McKenzie) acted during that interval.

2. Recruitment of professional staff continued to be difficult throughout the year, and, although the Dental Division reached full strength and the Nursing Service nearly so, there is still a great shortfall in Medical Officers and Health Inspectors.

3. Eight Assistant Surgeons and Sub-Assistant Surgeons arrived on first appointment from India. There is no immediate prospect of an increase in the number of African Assistant Medical Officers, but four Tanganyika candidates are at present studying with the purpose of qualifying in Medicine at Makerere College, Uganda. Two African Assistant Medical Officers, awarded scholarships under the Colonial Development and Welfare Scheme, left for the United Kingdom early in the year to follow a course lasting eighteen months in clinical and preventive medicine. An Asian Assistant Surgeon is also studying in the United Kingdom, having been awarded a scholarship by the National Association for the Prevention of Tuberculosis.

4. The Malariologist, Dr. D. Bagster-Wilson attended the Fourth International Congress on Malaria in Washington. He also visited some of the Tennessee Valley Administration Centres concerned with malaria control problems. In 1949 Dr. Bagster-Wilson will assume inter-territorial duties, but will retain a watching and guiding responsibility over the operation of Malarial Control in Tanganyika until it is possible to find a qualified special duty officer to undertake the territorial responsibilities.

II.—RESEARCH

5. During the year Dr. G. Muirhead-Thomson, Malariologist, continued his investigations into the problem of the fresh-water and salt-water varieties of *Anopheles gambiæ*.

6. Foci of salt-water breeding were found near Dar es Salaam and, in the course of his investigations, Dr. Muirhead-Thomson found that the larvæ and eggs of salt-water breeding *Anopheles gambiæ* were morphologically indistinguishable from the fresh-water breeding *Anopheles gambiæ*, although a variable proportion of adults possessed an additional dark band on the palps resembling the West African *Anopheles gambiæ var. melas*. In order to

distinguish the salt and fresh-water breeders and to study their distribution and role in malaria transmission, the larvæ of adult females caught in houses were bred in cages in fresh water and then transferred to seventy-five per cent sea water. The larvæ of typical anopheles died immediately, whereas those of the salt-water variety lived at least six hours. Adult females caught in houses at Changombe, Kinondoni and Kigogo, after differentiation by the above procedure, were killed and their glands examined. A significant fact which emerged from these dissections was that sporozoite infection was very rare in the salt-water variety indicating that its role in malaria transmission was probabaly a minimal one. The house-haunting habits of salt and fresh water *A. gambiæ* and *A. funestus* were studied by means of a specially constructed window trap in two experimental huts—one with one trap one foot square, and the second with two traps each one foot square, the latter being less dark during the hours of sunlight. Of the *A. gambiæ* caught in the huts very few left after a blood feed, but remained inside the huts despite wide variations in light conditions. Using the same experimental hut technique the effect of various insecticides on the habits of anopheles were studied; the following insecticides being used in the experiments :—

(a) D.D.T. in Diesolene;
(b) D.D.T. dispersible powder;
(c) Gammexane dispersible powder.

D.D.T. was shown to be effective in ridding the huts of anophelines, but the mortality among anophelines caught escaping in the window traps was only twenty per cent approximately after forty-eight hours, whereas with Gammexane one hundred per cent mortality was recorded, indicating that Gammexane is the more effective insecticide and that the action of D.D.T. is predominantly repellent to *A. gambiæ.*

7. Colonel C. J. Davidson, I.M.S. (retired), Director of the East African Medical Survey which, as recorded in the last Annual Report, is to be undertaken in the Sukumaland area, arrived in Tanganyika in December. The Survey is expected to come into full operation in 1949.

8. A Filariasis Research Unit, under the auspices of the Medical Research Council and led by Dr. F. Hawking and Lt.-Col. W. Laurie, D.S.O., I.M.S. (retired) commenced operations at Tanga in October, 1948. The unit is investigating the possibility of undertaking field experiments on the therapeutic properties of certain microfilaricidal drugs in the treatment of filariasis, especially as regards the new filaricidal compound, heterazan. This compound is given by mouth, and has been found to be remarkably effective in removing the microfilariæ of *W. bancrofti* from the blood, while it was very well tolerated by the patients. It is hoped that this work will prove the starting point for wider investigations on filariasis in East Africa.

9. Under the auspices of the Colonial Medical Advisory Committee visits to Tanganyika were made by Professor T. H. Davey, O.B.E., Professor of Tropical Hygiene at the Liverpool School of Tropical Medicine, and by Professor A. A. Moncrieff, F.R.C.P., Nuffield Professor of Child Health, London University. A reconnaissance team from the University of California also toured the territory conducting field trials and doing a certain amount of survey work on malarial and sleeping sickness problems. No report on the activities of this Unit has so far been received.

10. A special investigation into Salmonella infections was undertaken in the Dar es Salaam Headquarters Medical Laboratory during the year, and some uncommon or rare types of Salmonellæ were isolated. Further particulars of this work will be found in the Report of the Senior Pathologist.

III.—URBAN WORK AND HOSPITALS

DAR ES SALAAM

11. The health problems of the township differed little from those of previous years, but were intensified by the rapid expansion in building and built-up areas, accompanied, there is good reason to believe, by an increase in population out of proportion to the available accommodation. Owing to lack of building materials and skilled tradesmen consequent upon the War and its aftermath the rate of construction has been retarded. Despite this brake on housing construction the actual expansion and increase has not been paralleled by extension of the basic sanitary services. During the year much of the immediate preliminary planning, commenced a decade before the War, was achieved for schemes regarding Sewerage and Storm Water Drainage and Water Supply. Proposals for increases in staff and equipment for Refuse Collection, and for Disposal and Street Cleansing Services were put forward. Anti-malarial work continued throughout the year. No great extension of this work is expected to be practicable for some time to come.

12. Health visiting activities expanded gradually during the year to include concern for schools, homes, medical institutions and the follow-up of discharged hospital in-patients. During the first half of the year the Medical Officer (Schools) visited three schools in Dar es Salaam to inoculate school children with T.A.B. vaccine, and carried out a health survey of the pupils of the Government African Central School and a nutrition survey at Mchikichini School. A school children's treatment clinic was held regularly at the Sewa Haji Hospital during this period, but unfortunately all these activities had to be suspended in July owing to the lack of a leave replacement for the post of Schools Medical Officer.

13. The provision of a qualitatively safeguarded and quantitatively satisfactory milk supply for Dar es Salaam presents a serious problem. The volume of supply is inadequate and the methods of production and handling amongst the preponderant majority of suppliers are extremely bad. During the year tuberculosis was found to be prevalent among cattle of the Dar es Salaam sources of supply. The Veterinary and Medical Departments are intensifying their efforts to produce a clean milk supply and improve the methods of distribution. The public is being warned to boil all milk as an interim means of ensuring a safe supply until such time as the development and organization of the suppliers and distributors reaches the stage where the safeguards of modern pasteurization and distribution methods can be reasonably and efficiently imposed.

DAR ES SALAAM HOSPITALS

14. Administration of the Dar es Salaam group of hospitals, which comprises the European hospital, the Sewa Haji hospital for Africans and other non-Europeans, the Infectious Diseases hospital, and the Maternity and Child Welfare Clinic, continued on broadly the same lines during 1948 as heretofore.

15. The experiment was attempted of appointing one Matron in charge of both the two larger hospitals, the European hospital and the Sewa Haji hospital, and dividing her supervisory duties between the two. The administrative and organizational complexities associated with the distances between the component parts of this group proved beyond the experienced capacity of the personnel available. There thus remains doubt whether the Nursing Services of this group can be satisfactorily centralized under a single nursing officer of administrative rank. At present, owing to the departure of the Matron on leave in November, each hospital is under the charge of a Nursing Sister, directly responsible to the Matron-in-Chief, who therefore performs a dual function pending the development or appointment of a nursing officer who will accept and perform the duties involved by the ''decentralized consolidation'' of the group.

16. Early in the year a station waggon was allocated to the hospitals to provide transport for the Nursing Staff and Steward. Shortage of transport still remains a problem owing to the need to provide transport for African subordinate staff, European staff and students in training, and to collect and distribute rations for the two smaller hospitals.

17. There was a serious shortage of European nursing staff during the first half of the year, but the positon improved later on with the arrival of newly-appointed Sisters from the United Kingdom.

18. The Hospital Welfare Committees of both the European and the Sewa Haji hospitals held regular meetings throughout the year, and members of the Committees visited the hospitals. A number of improvements were suggested, but unfortunately execution of these improvements was often hampered through lack of funds outside the limitations of the budgeted estimates.

19. An emergency blood transfusion squad was set up during the year. This squad which is under the direction and supervision of the Woman Medical Officer in charge of the Maternity and Child Welfare Clinic is at the disposal of all Dar es Salaam hospitals.

20. A total of 1,899 surgical operations were performed during the year. 529 spinal anæsthetics were given. This has been the method of choice for all gynæcological cases, hernias and other major operations sited below the umbilicus. The results have been very satisfactory and this method of anæsthesia is both well tolerated and acceptable to the African patients. The use of this method has, however, been forced upon the surgical staff by reason of there being no specific provision for the appointment of an anæsthetist to the hospital establishment. It has been impossible to provide any form of expert instruction in anæsthetics for competent Medical Aids or trainees.

European Hospital Wing.

21. The increase in European population in Dar es Salaam during the year was evidenced by the marked increase in the work of this wing of the Hospital Group. The number of new admissions increased by thirty per cent from a total of 650 admissions in 1947 to a total of 882 in 1948, and the number of out-patients (new cases) increased from 3,020 in 1947 to 3,473 in 1948, an increase of about fifteen per cent. These figures do not include eye cases dealt with independently by the Specialist Ophthalmologist.

22. X-Ray work at the European Hospital increased with the increase of work in general. The present X-ray facilities are very unsatisfactory, but it is unlikely that a building to house the modern X-ray unit which is awaiting installation will be started until early in 1950, by which time it is hoped that the outstanding deficiency of electricity will have been remedied.

23. A new theatre lamp and a lift were installed during the year, and a direct pipe line to the main water tank at the Hospital was laid down in December after shortage of water had necessitated the temporary closing down of the hot water system.

Sewa Haji Hospital Wing.

24. The increase in number of patients was even more marked than at the European Hospital; the out-patient department being affected more than the wards. The number of out-patients rose from an average of 500-600 a day in 1947 to an average of 800 a day in 1948; as many as 900-1,000 patients being seen daily during the period April to June. The Out-patient Department is of primitive design, and is without capacity for dealing with such enormous numbers of patients. Although waiting time has been reduced considerably at the expense of time available for careful diagnostic service, alterations to the building and a redistribution of offices and store rooms are badly needed pending fulfilment of the outstanding need for alternative construction more resembling a hospital.

25. As in 1947, the hospital suffered from constant changes of medical staff. The hospital serves a threefold purpose—that of the only general hospital for persons of non-European habits in Dar es Salaam; that of central hospital for African cases sent from all over the territory for Specialist examination, advice and treatment; and that of training centre, both for European Medical Officers, Asian Assistant Surgeons and Sub-Assistant Surgeons, and African Assistant Medical Officers on first appointment; and for Hospital Assistants, Hospital Orderlies and Ayahs. Owing to lack of a reserve pool of qualified personnel to meet up-country reliefs and demands all too frequent changes take place in all ranks of this hospital staff.

26. It has been the purpose that all newly appointed Sub-Assistant Surgeons should undergo three months' conditioning at the Sewa Haji Hospital before being posted to up-country stations or assuming routine duties at the Hospital. This has often proved impossible in practice owing to the relief needs mentioned above, and great difficulty has been experienced through the necessity of employing on routine hospital duties newly appointed staff who cannot speak the language and are new to the country, its customs and its diseases. These difficulties were experienced particularly in the Out-Patients' Department where each Sub-Assistant Surgeon is obliged to cope with about 200 patients within 3-3½ hours daily. The effect on the quality of service cannot be other than detrimental.

27. The Medical Specialist reports that work in the medical wards of the Sewa Haji Hospital is dominated by the anæmias, and pulmonary and hepatic diseases. Two infections which present a problem are relapsing fever and tetanus. Anæmia in Africans in Dar es Salaam is almost entirely hypochromic. Many cases respond slowly, if at all, to iron treatment. Most frequently the disease is associated with hookworm, sometimes extremely difficult to eradicate from the individual patient.

28. A number of minor improvements were carried out during the year, including the installation of more ceiling fans and the building of a linen store by the inexpert subordinate African staff of the hospital itself.

Infectious Diseases Hospital Wing.

29. The appointment of a Nursing Sister to the Infectious Diseases Hospital has led to notable improvements in the nursing care of patients.

30. With the help of the Inter-Territorial Leprologist, all the leprosy patients at the hospital and at Nunge Settlement were reclassified according to the Havana classification with a view to selecting cases suitable for treatment by Sulphetrone.

31. The Medical Specialist reports that the majority of tuberculosis patients have advanced disease of both lungs when they are admitted, and are unsuitable for any form of collapse therapy. The turnover of patients continues to be rapid owing largely to deaths and the repatriation of incurables. No compulsion is exercised in keeping patients in hospital, but there is an obviously greater readiness on the part of the more therapeutically responsive cases to remain in hospital when they themselves recognize improvements in their well-being as a result of treatment.

Maternity and Child Welfare Clinic.

32. Four hundred and twenty-six women were delivered in the Maternity Hospital, and a further fifty-nine were delivered at home and subsequently admitted to the hospital. Ninety per cent of all the women admitted to the hospital had attended the ante-natal clinic, and practically all the infants born in the hospital attend the Child Welfare Clinics which are held thrice weekly, as also do the infants of the smaller number of mothers who were confined at home.

33. One hundred and eighty women, not in labour, but suffering from various disorders of pregnancy, were also admitted to the hospital. One hundred and thirty-six of these were discharged undelivered, and some were subsequently readmitted for confinement.

34. There were five maternal deaths in the hospital (the cause in four cases being obstetric shock, and in one case eclampsia), whilst two women died at home having left the hospital against advice. Of seven women transferred to the Sewa Haji Hospital for Cæsarian Section, two died and a third was delivered of a stillborn child.

35. There were twenty-five stillbirths in the hospital, in many cases due to macerated fœtus. Of nine neo-natal deaths occurring in the hospital, three were from unknown causes, one cerebral hæmorrhage and five due to prematurity.

PROVINCIAL TOWNSHIPS

36. Enlargement of hospital facilities has again been impracticable during the year, though a number of alterations and repairs have been effected where materials and constructional staff have been available.

37. At Morogoro a Township team of fifteen men supervised by a Malaria Control Assistant effected great improvement to the drainage of swamps and training of the Morogoro river. The treatment of houses with 0·5 per cent

gammexane in Diatomite filler has continued throughout the year and, as indicated from the hospital admissions, relapsing fever has been almost eradicated from the Township. Ninety per cent of the Morogoro houses are considered to be insanitary, and the Township Authority has agreed to a programme involving the demolition of thirty houses per month. This programme, which is being strictly adhered to, means that some 350 to 400 houses will have been demolished by the end of 1949.

38. At Mwanza in the Lake Province the standard of mills and godowns is improving slowly. No less than twenty-nine buildings or works involving major construction were begun and almost completed during the year. An unusual problem exists in the Mwanza Port area and Bay where, from time to time, numbers of papyrus islands are blown into shallow water where they promptly take root. The irregular edges of these islands and the sheltered stretches of slack water between them and the land are favourable breeding places for mosquitos. The only practical method of removal is to break the islands up; an unpopular job owing to the danger of crocodiles. It has been estimated that it will cost the Township Authority £500 a year to keep the port reasonably clear in this manner.

39. In the Western and Central Provinces water supplies and sanitation are still major problems. In the Southern Highlands Province there has been a marked improvement in the Township hygiene and sanitation organizations at Iringa and Mbeya, but at Chunya, where business has been declining for some years, godowns and other buildings are deteriorating and require constant supervision.

40. Supplies of medical and surgical equipment are improving, but shipping delays from the source continue to cause embarrassment to outstations. A new Watson Twin X-ray apparatus was installed at Tanga in June, and there are mobile plants at Mbeya, Iringa, Moshi, Kibongoto, Arusha, Mwanza, Bukoba and Tabora. Mobile plants are also available for Dodoma and Musoma, but have not yet been installed.

IV.—RURAL MEDICAL SERVICES

41. As a result of a decision reached at a meeting of Executive Council on the 30th March, a Committee was appointed to frame proposals to form the basis of future policy in regard to the Rural Medical Services of the Territory. The Committee reported in July, and the recommendations made were placed on the table of the Legislative Council as Sessional Paper No. 6 of 1948 and accepted with minor amendments.

42. The Committee found that as a result of the increasing popular demand for medical services over the last twenty years, the Rural Dispensaries of the Territory had multiplied to a point at which their number had overstretched the capacity of the Medical Department, either to train the staff required or to supervise professionally the work carried out. As a result many of the existing tribal dressers were, in fact, assuming diagnostic and treatment responsibilities far in excess of their competence and training. Furthermore, since the greater proportion of the so-called Rural Medical Services is financed by Native Authorities and Missions, the increase in salaries expected to follow as a result of the Government salaries revision would make any expansion, and even bare maintenance of the existing services impossible unless substantial grants-in-aid could be provided by Government for this purpose.

43. The Committee therefore recommended that the Territory outside the townships should be divided into two areas in which such Rural Medical Services would be provided to different standards. Those areas within effective range of supervision by a qualified medical practitioner in the employ of Government or Mission authorities should be served by the higher grade centres, to be known as Grade "A" Rural Medical Stations. The immediate objective should be to raise the standard of services rendered by the existing medical centres in such areas by posting the more highly skilled attendants, and ensuring that regular professional supervision be provided.

44. In the remainder of the Territory, i.e., those parts outside effective range of supervision, the existing centres should be retained, but the objective range of services rendered should be rationalized to a standard level of performance within the capacity of the less skilled and professionally unsupervisable attendants manning such posts. The setting up of new Rural Medical Stations of this grade should not normally be encouraged. These stations would be known as Grade "B" Rural Medical Stations. The range of routine treatment which may be given by the Medical Aid should, in the case of Grade "A" Stations be routinely prescribed by the responsible supervising medical practitioners to conform with the diagnostic and treatment capabilities and competence of the trained assistant in charge. In the case of the Grade "B" Stations it is the purpose that the standard of treatment to be rendered should be in the nature of first aid for injuries and the more common ailments. To this end it becomes necessary to provide a uniform schedule of dressings and simple remedies to be available in such stations to a standard within the restricted diagnostic and therapeutic skills of the attendants, and recast a uniform schedule of training for the production of such attendants.

45. Stations in the Grade "B" areas would no longer be a professional liability of the Medical Department, and responsibility for their control, manning and equipment would normally rest with the Native Authority. Because of the shortage of professional staff the capacity of the Medical Department to undertake the training of Rural Medical Aids is at present inadequate to permit the production of trained staff for the Grade "B" stations supplementary to the training of the higher standard Medical Aids for the Grade "A" stations. It is the hope that Missions should be asked to undertake the training of men to prescribed standards to allow for the wastage among existing Grade "B" components. It was recommended that preventive medicine should be urged forward whenever possible, but not at the expense of curative medicine, it being considered that the organized development of preventive medical services must be restricted at present to the Grade "A" areas.

46. In order that there should be the most effective co-ordination between the Government Medical Services and the Mission Medical Services, the Report recommended that Mission medical practitioners should be authorized to inspect and control Native Authority Stations within their prescribed effective range, and in a like manner Government Medical Officers should perform similar functions for Mission medical outposts that fall within their effective range of supervision. No new stations, either Native Authority or Mission, are expected to be opened under the prevailing conditions, other than in exceptional circumstances. Government accepted the recommendation to give sympathetic consideration to the grant of financial assistance where

necessary, both to the Native Authorities and to Missions in order to enable them to maintain existing medical services in the face of the increase in wage costs that may be expected as a result of the standards prescribed under the Government salaries revision.

47. Work on the Mlalo Basin Rehabilitation Scheme continued throughout the year. A team, provided from Provincial medical resources, was stationed at the village of Muangoi, supplied attention to the population and carried out a continuous health survey of the people from village to village. A higher spleen rate and malaria incidence was discovered than was expected to be found in a mountainous region. A fairly extensive survey of this area was made by the Malariologist, as noted elsewhere in this report.

48. In Mbulu District there was no recurrence of the 1947 epidemic incidence of malaria during the year under review. Various measures have been taken to restrict migration of the non-immune population from the plateau to the valleys, in which the vector prevalence was considered to be one of the contributory factors for the 1947 outbreak.

V.—MATERNITY AND CHILD WELFARE SERVICES

49. The Dar es Salaam Clinic, in its new and expanded location, has increased rapidly in popularity and was kept busy through the year. Some particulars of cases dealt with are given in paragraphs 32 to 35. Through the Home Health Visiting Service which is being developed in the Townships advice on the home care and feeding of infants and children is given to mothers as a means of gaining the confidence of parents and encouraging attendance at the clinics concerned with the ante-natal, well-baby and child welfare programmes.

50. Elsewhere in the Territory African women are showing an increasing concern for delivery and pædiatric services. There would therefore be a great opportunity for the training of a considerable number of midwives for work in rural areas if the continuity and controlling factors inherent in an organized rural health service could be brought into operation.

51. Existing Maternity and Child Welfare Clinics in the Provinces have suffered in some instances as a consequence of staff shortages and changes, and there has been a falling off of the work done in the Dodoma and Tabora Clinics. Despite these difficulties, attendances have increased in most places, thanks to the untiring efforts of the general duty Nursing Staff. The Tanga Maternity Clinic, with twelve beds and four cots, has continued its excellent work.

52. The following tables show some comparative figures in respect of Maternity and Child Welfare Services in the Western and Central Provinces :—

	Proportion of abnormal deliveries	Maternal Mortality	Still-births
Government Hospitals	61 : 967 (6·3%)	1·6% (1,001 births)	6·1%
Missions W. P.	98 : 1,168 (8·4%)	0·2% (1,476 births)	4·4%
Missions C. P.	163 : 1,838 (8·8%)	0·9% (1,893 births)	8·1%
Native Authority	9 : 586 (1·5%)	0·17% (595 births)	—
England and Wales	—	0·18% —	2·8%

NEONATAL DEATH RATE

Government Hospital	2·0%	(940 live births).
Missions W. P.	10·4%	(1,411 live births).
Missions C. P.	2·8%	(1,740 live births).
Native Authority	0·7%	(583 live births).
England and Wales	2·4%	

Figures for Native Authority clinics are low because difficult cases are normally referred to Government hospitals.

VI.—MISSION MEDICAL WORK

53. Reports from Mission Medical Stations show an overall increase of 10,000 in the number of in-patients treated during the year, and, although the number of out-patients (new cases) has decreased, a considerable improvement in attendance records for out-patients has been reported from U.M.C.A. stations in the Masasi Diocese, Southern Province.

54. The Southern Province Missions also report a general increase in the number of venereal disease cases under treatment (both syphilis and gonorrhœa), and point out that the actual incidence must be very much higher than treatment figures indicate. A very significant increase in cases of ankylostomiasis coming under treatment over the last ten years is also reported from this Province, the number of cases treated in the Masasi Diocese having risen from 650 in 1938 to 2,103 in 1948. The real challenge of this observation lies in the fact that this disease lends itself to community control. If the confidence of the people in the effectiveness of treatment is measured by the increased number of cases presenting, the failure to preach and practise preventive medicine as an integral part of rendering general medical services cannot fail to be conspicuous.

55. The number of qualified Medical Practitioners employed by Missions has increased from fourteen to twenty during the year, and a new hospital of permanent stone construction is in process of erection at Berega, Kilosa District, whilst the first section of a new hospital at Sofi Swiss Capuchin Mission should be completed in 1949.

56. Under regulations laid down during the year, Government Grants-in-Aid are payable at the discretion of the Director of Medical Services, with the advice of the Medical Grants-in-Aid Advisory Committee, to those Missions whose medical stations are under the direction and control of a registered medical practitioner. Grants may be made in respect of (a) employment of professional and trained technical staff, (b) erection and maintenance of buildings, and (c) provision of supplies and equipment. During the year a total of £28,080 was paid out to Missions for medical services, largely based upon the qualified medical and nursing staff components comprising the Missions' medical establishments.

VII.—TUBERCULOSIS HOSPITAL, KIBONGOTO

57. As stated in the Annual Report of 1947, tuberculosis control in Kilimanjaro comprises :—

(a) a chain of dispensaries round the mountain :
(b) the Hospital Sanatorium at Kibongoto :
(c) the Settlement.

This has been an exceptionally heavy year for the staff of the Unit as is shown by the fact that, including both in-patients and out-patients, the number of tuberculosis cases diagnosed during the year totalled 2,308. This is calculated to result from the examination of approximately 23,000 persons.

58. The daily average of patients treated in the Hospital-Sanatorium itself was 214, although on many occasions the number rose above 250. At the end of the year 227 in-patients remained, including eleven non-tuberculous cases, compared with 173 in December, 1947; whilst 1,061 patients were discharged during the year. Of this total of 1,277 tuberculous patients treated in the hospital, 619 were Wachagga and 386 were residents of the Mbulu District, the remainder coming from various other places, including Mombasa and Zanzibar.

59. That all this has been possible, even with depleted staff, is noteworthy. As the Specialist in charge says "For my part I feel we were sailing too close to the wind for safety during most of 1948", and the experiment of accepting for treatment "anyone from anywhere in any condition" has had to be reviewed.

60. The general prognosis of non-Chagga patients has this year compared much more favourably than in any previous year with that of the Wachagga on discharge. This fact, which may at first sight appear a surprising refutation of the theory that the isolated special tuberculosis hospital should be avoided like the plague, is due largely to the fact that a large proportion of the cases other than Wachagga were selected from the Mbulu District as a result of the tuberculosis survey in that area. The Specialist reports that "once these early cases have got into hospital, they do just as well as the Wachagga".

61. In June a survey was conducted in ten villages in the Mbulu District in an endeavour to ascertain the incidence of disease in that area, and to find out whether it was of human or of bovine origin. Disease was found in 4·5 per cent of the 5,006 people who were tested (about fifteen per cent of those giving a positive reaction to the graded Mantoux tuberculin test were selected for fluoroscopic examination). Excluding the early type of bronchial lymphatic disease the incidence was 2·3 per cent. Specimens of glands from various parts of the body in persons either suffering from tuberculosis, or who had died with glandular tuberculosis, were sent to the Medical Laboratory to determine the human or bovine origin of the disease. Specimens of mesenteric glands as well as from other locations indicated the human type as the source.

62. In another survey conducted at Machame, one of the most populous districts of the Kilimanjaro area, disease was found in 7·1 per cent of 2,287 persons tested. Excluding the early bronchial lymphatic type, the disease prevalence was 0·8 per cent. It is possible that this striking difference between the results obtained at Machame and those of the Mbulu survey may have been due to the fact that fifty-five per cent of those who gave a positive reaction to the graded test at Machame were fluoroscoped as against the fifteen per cent of the positive reactors from the Mbulu group.

63. The following types of occupational therapy were introduced during the year: local basket and matwork from local palm; tin work; machine sewing; hand sewing; making of wooden spoons, and weaving with bed looms. Mirror making was started, but had to be abandoned owing to the unanticipated expense involved. The open-air school, teaching Standards I to IV (Swahili) and IV and V (English) is popular and attendance has been good.

PATIENTS IN HOSPITAL DURING 1948

CLINICAL ANALYSIS

	Discharged	Remaining	Total	Re-Admission
Pulmonary TB Plus	224	173	397	72
Pulmonary TB Minus	104	14	118	44
Bronchial Lymphatic	281	5	286	26
Cervical Lymphatic	40	13	53	5
Generalized Lymphatic	1	—	1	—
Axillary Lymphatic	1	1	2	—
Bone and Joint	6	3	9	1
Spinal	6	3	9	6
Acute Miliary Disease	—	1	1	—
Lupus	—	1	1	—
Tuberculous Infection	268	2	270	2
NOT Tuberculous	130	11	141	—
Total All Types	1,061	227	1,288	156

Readmission refers to patients who have been in hospital at some previous occasion, any time previously.

NOT Tuberculous refers to contacts or suspected cases who were found to be not tuberculous on complete examination in hospital.

PNEUMOTHORAX AND PNEUMOPERITONEUM THERAPY

	No. of Inductions	No. of Refills
Pneumothorax	127	6,024
Pneumoperitoneum ...	31	1,568

Operations performed ancillary to Pneumothorax and Pneumoperitoneum Therapy

Phrenicotomies, uncomplicated	23
Thorascopic examinations	10
Thorascopic examination, with obliteration of adhesions	42
Enucleation : cervical or axillary glands	41
	116

VIII.—MENTAL HOSPITALS

64. The numbers of patients for the year were as follows :—

Dodoma—Total capacity 234 (including ten European).

	Males	Females	Total
Remaining at 1st January 1948 ...	134	45	179
Admitted during year	132	52	184
Transferred to Lutindi	—	3	3
Discharged	105	27	132
Died	10	—	10
Escaped	1	—	1
Remaining at 31st December 1948 ...	150	67	217

Lutindi—Total capacity 150.

	Males	Females	Total
Remaining at 1st January 1948 ...	86	40	126
Admitted during year	20	7	27
Transferred to Dodoma	7	1	8
Discharged	21	6	27
Died	6	2	8
Remaining at 31st December 1948 ...	72	38	110

65. The number of inmates at Lutindi was reduced towards the end of the year by directing new patients to Dodoma and by the transfer of a number of selected patients to the latter hospital.

66. There was a marked increase in the number of patients entering the Dodoma Hospital voluntarily, and, although the number of discharges was higher than in any previous year, the rise in new admissions was such that it became necessary to convert some of the existing accommodation to provide an additional twenty-bedded ward for female Africans.

IX.—MALARIOLOGIST

67. The Malariologist, Dr. Bagster Wilson, returned to the Territory from leave at the end of 1947, but was absent during May and June, 1948, attending the Fourth International Congress of Malaria and the Expert Committee on Malaria of the World Health Organization at Washington. In May Mr. Phipps, Entomologist, arrived on first appointment, and the staff of the Unit, which now includes an Assistant Malariologist, an Entomologist, two European Malaria Control Officers and five Graded African Malaria Control Assistants, was able to carry out a number of surveys and inspections during the year. Three major field trials of insecticides were begun, while courses of training for African Malaria Assistants were initiated. As a result of the activities of the Unit it is now possible to express informed opinions—either in broad principles or in some cases in detail—about most areas in the Territory.

68. Extensive tours were carried out in the Lake Province and other parts of the Central Line; and in the Southern Highlands and Southern Provinces, while Mosquito or complete Malarial surveys were carried out in a number of places of differing epidemiological characteristics. In higher country a fairly extensive survey of the Mbulu District revealed clear evidence of the epidemic recorded there in 1947 at altitudes of around 6,000 feet.

69. A careful study of lake-shore breeding at Mwanza and Musoma went some way towards defining the nature of the anopheline problem here. Although *Anopheles funestus, rivulorum var. garnhamellus, rivulorum* and *pharœnsis* were found, the danger area was considered to be limited to the inner margin of the lake vegetation within the fringing grass or papyrus where *gambiæ* and *funestus* types were to be found. Other surveys were carried out at Ngudu, Tinde, Shinyanga, Nzega, Dodoma, Morogoro and Chunya. The port of Mtwara has now been visited four times, and adequate data on anopheline infestation and breeding conditions there has been obtained.

70. Evidence of the occurrence of seasonal malaria was found in the Mlalo Basin area, while, in the course of a tour of the Southern Province, the existence of *A. brunnipes,* a minor vector of malaria, was recorded for the first time in Tanganyika.

71. An investigation into the effect on malaria of residual treatment with gammexane was started in a sugar estate labour force at Arusha Chini. All camps but one were treated at the end of May with gammexane P. 530 (dispersible powder) in a dosage of nearly two grammes B.H.C. per square metre, and retreatment was carried out in December. Assessment of the effectiveness of this experiment is to be based entirely on the effect on human malaria, and up to date the results have been equivocal, though a sharp drop in parasite rates and infestation after the second treatment suggests that more frequent treatment might be worth investigation.

72. The object of another field trial was to observe the effect of residual treatment with gammexane on anopheline behaviour in a group of houses.

Hitherto observations on the effect of residual treatment on *A. gambiæ* and *A. funestus* in East Africa have generally been confined to those on one or two houses, and it seemed probable that the results of treating a group might prove to be very different. It is essential that if any progress is to be made in the application of this method of residual treatment, it must be learned what has happened to the Anopheles that are not found in a house that has been treated.

73. The experiment was started in a group of houses in the labour camp of the Sisal Experimental Station at Mlingano. Sixty-three houses were treated with gammexane P. 530 using the same dosage as in the Arusha Chini tests : four houses were left untreated, and a further five treated with D.D.T. solution at an equivalent dosage. The object was to study Anopheline behaviour by means of morning spray catches, collecting in "dawn" traps of the Muirhead Thomson pattern, and observation of the numbers found dead on sheets spread on the floor overnight. A number of preliminary difficulties have had to be overcome, and so far observations have been of a trial nature.

74. For the first two months after spraying the numbers of culicines in the treated houses were about half those in the untreated houses, but in the following two months the numbers in the houses treated with gammexane rose to equal to those in the untreated houses, while the numbers in the D.D.T. treated houses remained approximately constant. Percentages in traps in houses treated with D.D.T. fell during the second period, and more of the mosquitoes were found resting in the houses. It may be concluded that, as far as culicines are concerned, the gammexane became ineffective after two months and that D.D.T. was losing its power to drive the mosquitoes out of the houses.

75. An investigation into the practical application of a gammexane larvicide has been carried out in the Muheza area, and a good deal of preliminary work has been done in ascertaining the basic levels of anopheline infestation; working towards a measurable means of assessment, and in finding out the most suitable "tools" for the application of "high concentration" larvicide. The larvicides used were :—

Derris—20% ground derris in charcoal.
D. 034—0·6% gammexane in gypsum.
LG. 110—10% gammexane in xylene.

It early became evident that, mainly owing to the rapid loss of the rotenone content under the humid conditions at Muheza, derris powder could not be depended upon, but despite the absence of definite results it became apparent that some control was obtained with gammexane D. 034, and a considerable degree of control with gammexane LG. 110. Methods of assessment were by adult catches and by larval searching of selected breeding places by means of repeated dipping. While it is evident that only a very effective larvicidal method could produce a good control in an area as small as those used for the tests, it is believed that one which is effective should produce a reasonable percentage reduction in the central catching stations.

76. The breeding places selected for larval searching were of three types—wells, rice fields and streams. It was found that while almost complete control could be obtained by a powder application of gammexane on rice, no oily preparation, even a concentrated larvicide of not more than one quart to the

acre, can be applied without damaging the plants. It was not difficult to obtain satisfactory control in wells with either a powder application or with the oil solution, but control of breeding in streams was very incomplete with each of the preparations.

77. Viewing mosquito control in the Territory as a whole the Malariologist considers that one of the most useful functions of the Territorial organization should be to organize the redistribution of anti-malarial activities to ensure that the resources of funds and manpower that are available are used to the best effect. It is also necessary that a proper balance should be established between the "insurance" of Aedes control and the protection of communities by the control of malaria vectors. A start has been made in these necessary adjustments, but any extension of activities to rural areas, except on an experimental scale, is beyond the present resources of funds and manpower. Considerable progress in malaria control is apparent in Dar es Salaam without any evident loss in the efficiency of Aedes control, and whilst there have been disappointments in various places, results obtained in Morogoro, Iringa and Moshi are encouraging, and a good start has been made in re-organization at Tabora, Mwanza, Lindi and Kilosa, at all of which places one or more Malaria Control Assistants are now stationed.

78. During the year trial of various types of sprayer, nozzles, etc., has continued. For the application of residual insecticides the Eclipse Junior Stirrup Pump, made by the Eclipse Spraying Co., with trigger-lance and two extension pieces of two and four feet respectively, has proved to be an almost ideal tool under East African conditions. Stations throughout the Territory are now being equipped with the Kent No. 4 Oaks Sprayer for the application of MALARIOL, while the Sovereign hand atomiser, of the quart size, has become standard equipment for space spraying of pyrethrum and other insecticides.

79. The Malariologist reports—"So far as malaria is concerned, the Territory is generally regarded as consisting of a few islands in which malaria is slight or absent set in a sea of intense transmission. This picture requires modification in certain respects. First, because these islands are subject to increasing invasion by the vectors of malaria, and there is in any case a wide fringe of more or less intense malaria transmission around their bases. Second, there are wide areas, that include almost the whole of the Central Province, parts of the Eastern Province, and a good deal of the Southern Province, as well as smaller stretches elsewhere, in which malaria transmission, far from being perennial, is quite definitely seasonal, with all that this connotes in respect of susceptibility in the indigenous population and liability to annual epidemics of greater or less severity. There are now quite a number of concentrations of population, in towns or industrial undertakings in which, although the area may be small, a considerable population is being protected by European activity, and in which therefore, the effect of malaria is similar to that in the two preceding categories."

X.—YELLOW FEVER SURVEYS

80. The possibility of endemicity of Yellow Fever in Tanganyika is constantly borne in mind, and small surveys have continued throughout the year. In addition to the six positive protection tests discovered in 1946 and 1947, and mentioned in the Annual Report for 1947, a further five immunes

have been found—one in Tanga and four in the village of Moa in the vicinity of Tanga. This makes a total of eleven so far found, and it is interesting to note that all but one of these were Africans resident in the coastal belt.

81. There is no doubt that these results are of interest and importance, and require further extension. There are many blind spots in our knowledge of the epidemiology of Yellow Fever in Tanganyika, and consideration is being given to the possibility of trapping possible arboreal reservoir hosts.

82. Full details of all immune cases to date are given in the following table :—

	Province	District	Age	Sex	Date bled
1.	Southern	Lindi	25	F	28.6.46.
2.	Southern	Lindi	21	F	29.6.46.
3.	Southern	Lindi	23	F	2.7.46.
4.	Tanga	Tanga	20	F	29.7.47.
5.	Tanga	Tanga	25	F	28.7.47.
6.	Northern	Moshi	20	M	26.9.47.
7.	Tanga	Tanga	25	F	Dec. 1947.
8.	Tanga	Moa Village	15	M	July 1948.
9.	Tanga	Moa Village	14	M	July 1948.
10.	Tanga	Moa Village	10	M	July 1948.
11.	Tanga	Moa Village	12	M	July 1948.

XI.—HEALTH OF LABOUR

Housing Conditions.

83. During the last five years there has been slow but steady improvement in the standard of housing provided, and this progress has continued in most areas in 1948. More employers are realizing that it is more eocnomical to erect a permanent type of dwelling than to maintain satisfactory semi-permanent or temporary buildings for their labour. Employers are encouraged to submit their plans to the Labour Department for approval. Nineteen plans and designs affecting 10,714 workers were approved in 1948, and since the inception of the scheme in 1947, altogether forty-eight type plans have been approved, the total number of workers affected being 23,568.

84. The sisal industry leads the way in this new movement, but the picture is not as satisfactory in areas where new development is taking place, and where the small employer is unwilling to risk capital on the erection of permanent buildings until his venture shows signs of success. For this reason most of the small property owners' housing can be classified only as fair, but even these are improving conditions. At the end of the year, however, evasion of the statutory minimum standards appeared to be taking place in certain areas and some employers were encouraging their alien labour to squat on unoccupied land. Legislation to control this practice is under consideration.

85. A factor that has militated against the rapid completion of new buildings is the problem of shortage of supplies of building materials. It is possible that these shortages will persist for some years to come, and the rate of re-building or of new building will be retarded for a corresponding period of time.

86. The Overseas Food Corporation operates in three widely separated areas which differ vastly in respect of the conditions under which the labour force have had to be established and organized. The Kongwa area in the Central Province is devoid of suitable building material with the result that the

whole African labour force, as well as many European, Asian and other kindred employees perforce continued to be housed under canvas. A relaxation was made in the legislation during the year to permit of tentage being used as a temporary form of accommodation subject to special conditions prescribed by the Labour Department. By the end of the year plans had been approved for the erection early in 1949 of hutted accommodation for skilled married employees to be followed by similar hutments for the unskilled men. The lack of accommodation for the former provided the local authorities with many difficult administrative problems, since, despite instructions issued by the Overseas Food Corporation that quarters were not available, wives, families, friends and relations flocked into the area and proceeded to erect hovels of every description outside the boundaries of the scheme, and in their wake followed other less desirable members of the community of both sexes. It is considered that this state of affairs, which was perpetuated in the other two areas to a lesser extent, could have been avoided had the advice of the Labour Department been followed two years ago when the scheme was first inaugurated.

87. Urambo in the Western Province, where development started later, benefited by the mistakes made at Kongwa, and although accommodation has not kept pace with the intake of labour, and recourse has had to be made to tentage, by the end of the year conditions generally gave little cause for concern and the first of the model village units was under construction.

88. The Railway Administration continued with their building programme for their African employees during 1948, and by the end of the year 106 permanent quarters had been erected and the standard of building remained high. The Public Works Department while engaging in no large building programme for their native employees, have commenced in isolated instances to erect new quarters, and in certain areas the local Public Works Department representative has attempted, with the funds at his disposal, to remove existing camps or to maintain them in as sanitary a condition as possible.

Ration and Ration Scales.

89. The existing Government regulations with regard to the provision of rations to "fed" labour has been adhered to in all areas within the limits of the availability of supplies. The meat shortage in the Southern Province persisted in 1948, and in spite of efforts to interest the large employers in the importation of high-value protein in the form of dried fish, the provision of animal protein remains totally inadequate. This is a problem which requires an early solution in view of increasing development of the Southern Province. Seasonal shortages in groundnuts and beans have also been noted, but the effects have not been serious. A problem still to be resolved is the provision and even distribution throughout the Territory of the staple foodstuffs for the feeding of labour.

Camps for Migrant Labour.

90. At the end of the year the Labour Department was maintaining thirty-four labour camps and shelters for migrant labour. 189,371 persons were accommodated at those camps and shelters where records are kept, and 7,096 received medical attention. A permanent rest camp was opened at Iringa in August and has proved very satisfactory. A second "A" type camp is

under construction at Morogoro. In addition to the Government camps some large industries and employing concerns also maintain camps at various places in the Territory.

Health.

91. Considering the territory as a whole there is nothing outstanding to report in connection with the health of labour during 1948, but it was noteworthy that in Tanga and the Northern Province in the first half of the year the death rate increased considerably above the rate for the corresponding period in 1947. No satisfactory explanation can be given for this rise, and the diseases implicated were not specifically attributable to environmental conditions. There was an outbreak of diarrhœa and dysentery of a peculiarly fatal type in the Morogoro District. Such outbreaks have occurred at varying intervals since 1937, and exhaustive investigations by the Medical Department have so far failed to trace the contributory cause of the outbreaks apart from the unsatisfactory protection of the sources of water supplies. The epidemic this year affected all tribes working on the estates, the majority being Warundi and Waha.

92. Outbreaks of skin ulceration were noted on various estates from time to time, and were invariably due to lack of supervision and lack of cleanliness of employed labour. Infectious disease was not prevalent among the labour forces, though a small outbreak of cerebro-spinal meningitis occurred in the Urambo area of the Overseas Food Corporation projects, and there was a small outbreak of smallpox in the Southern Province area of the same scheme.

Medical Facilities.

93. The provision of medical facilities, made a statutory requirement by the Master and Native Servants (Medical Care) Rules, 1947, are being made increasingly available by industrial undertakings for their employees; progress is slow because of the shortage of trained staff, but the more progressive employers are aware of the benefits that accrue from their own properly equipped and staffed medical services. Three large mining companies maintain a service under the direction of qualified medical practitioners, and their reports give ample evidence of the value of the services supplied. Some large agricultural concerns employ a qualified practitioner on a part-time basis. This method is not entirely satisfactory as the medical practitioner cannot devote the time necessary to investigate and advise upon problems of hygiene and also do the mass of clinical work awaiting him on his periodic visits.

94. The small employer represents a problem of some magnitude for which the only solution appears to be the formation of a "Group Medical Service" for the areas in question. The areas concerned are the mixed farming and coffee districts.

95. The Overseas Food Corporation provide a complete medical service for their employees. Their ratio of available qualified staff per 1,000 employees is far higher than that at present attainable by Government for the indigenous population.

96. In the middle of 1948 a new system of calculating mortality rates was introduced, which is now based on the rate of 100,000 man days worked and not per 1,000 employed as previously. This new system has been introduced in an attempt to obtain figures which could be assessed with comparative

accuracy from the various Provinces. It is of course not applicable in the case of a small employer who keeps few, if any, accurate records of the man-days worked, but it has proved to be of great value in dealing with the larger employers who have accurate accounting methods.

Medical Examination of Recruits.

97. This was continued as in 1947. A total of 36,415 recruits were examined and 5,595 were rejected or downgraded, giving a rejection rate of 15·4 per cent. This compares favourably with 17·15 per cent rejected or downgraded in 1947. The biggest centres for medical examination were Mbeya with 7,435, Singida with 7,007 and Kigoma with 6,972.

XII.—REPORT OF THE NUTRITION OFFICER

98. In addition to work carried out in Dar es Salaam and elsewhere in the Eastern Province, the Nutrition Officer visited the Central, Northern, Southern and Tanga Provinces during the year. Qualitative data on native diets and their seasonal variations, based on observation of the food habits of a number of families and schoolchildren, were collected from the Mpwapwa District of the Central Province, and from the Lindi and Morogoro areas.

99. From June to July and October to November detailed quantitative dietary surveys were carried out in the Mlalo Basin area of the Western Usambaras in connection with the survey work of the Mlalo Basin Rehabilitation Scheme. Twenty-four families were selected for this survey, three being the families of carpenters living in the village of Mlalo itself, and the remainder peasant families living within the area of the basin. The diet of each family was observed over a continuous period of ten days on each occasion. The survey is to be continued over a whole year to obtain information on seasonal variations.

100. Early in the year an investigation was made into the feeding of Africans in the Railway, Contractors' and Overseas Food Corporation Camps around Lindi and Mikindani, and a revised scale of feeding was drawn up for the Overseas Food Corporation labour in conjunction with the Chief Medical Officer's Department and the Chief Caterer of the Overseas Food Corporation.

101. The diet scales of a number of schools, hospitals and prisons have been reviewed and revised pattern dietaries, with tables of suitable substitutions, have been drawn up.

102. A school feeding experiment has been started in an African Boys' School at Dar es Salaam to determine the effect on day-school boys of a nutritious supplement to their diet. On five days a week over a period of three months, 440 boys of ages ranging from seven to sixteen years, were each given a biscuit composed of :—

Maize Meal	12·88 g.
Standard Wheat Flour	1·48 g.
Sugar	4·58 g.
Red Palm Oil	4·58 g.
Food Yeast	4·58 g.

115 boys were used as a control group and received no biscuits, and a small group of about thirty-five boys were given biscuits containing groundnut protein meal instead of maize meal. All the boys were weighed and measured and their hæmoglobin values determined by the Tallquist method before and after the experiment. The biscuits became very popular after a short trial

period, but owing to difficulty in obtaining supplies of the biscuits and various other factors, no statistically significant results could be obtained from examination of the boys after the short period covered by the experiment. It is proposed to carry out a revised form of this experiment in 1949.

103. Lectures on nutrition in relation to African diets have been given to African Medical students in Dar es Salaam, and to women at the Mlalo Welfare Centre; and a paper on food and nutrition was prepared for use in the Agricultural Instructors' course.

104. The Departmental pamphlet on Hospital Feeding has been rewritten, and it is hoped that printed copies will become available next year.

XIII.—TRAINING

105. Provision of hostel accommodation for students at Dar es Salaam and Tanga continues to be a problem, but additional temporary accommodation for twelve students in Dar es Salaam was erected and occupied, and by the end of the year the Dar es Salaam hostel had accommodation for sixty students. It is hoped that buildings to house a further eighteen students will be completed in 1949. In Tanga the women's out-patient Department attached to the Medical Training Centre has been converted into a hostel for fourteen African female Nursing Auxiliaries, but the provision of suitable hostel accommodation authorized with a high priority since 1944 remains outstanding.

Hospital Assistants

106. Seventeen first year students, eight second year students and three third year students were in residence at the beginning of the year in the Dar es Salaam Training Centre. Of these, two completed their course and qualified in December. Twelve first year and seven second year students remained under training at the end of the year.

107. During the first year of their course the Hospital Assistant students study Anatomy and Physiology, First Aid, Nursing, Surface Anatomy and Hygiene. In the second year they proceed to Medicine, Minor Surgery, Pharmacology, Pharmacy and further lectures on Nursing, with practical work in the wards and in the Dispensary. The final year of the course includes further instruction in the second year subjects, with work in the theatre and in the Out-patient Department.

108. It is of interest to note the wide range of tribes from which these students are drawn, the following tribes being represented during 1948 :—

Baganda; Mkaguni; Mhehe; Mbondeni; Mngindo; Mgogo; Mhaya; Mpare; Mkerewe; Jaluo; Mwnyakyusa; Mwnyamwezi; Mdigo; Mchagga; Mnyasa; Mfipa; Msegeju; Mnyvrambo; Mkirobo; Mtusi; Msukuma; Mlambia; Mngoni.

Laboratory, Pharmaceutical and Physiotherapy Assistants

109. First year students take the course of lectures in Anatomy and Physiology, Hygiene and First Aid, together with the first year Hospital Assistant students. They then go on to second and third year training in their respective Departments. Three Laboratory Assistants successfully passed the final qualifying examination in December, and at the end of the year three Laboratory Assistants, two Pharmacy Assistants and one Physiotherapy Assistant were under training in Dar es Salaam.

NURSING AUXILIARIES

110. Out of eighteen students who entered for the final examination in December, fourteen qualified. The "Block" system of training was inaugurated at Tanga in October, and is proceeding smoothly. A total of seventy-two students (forty-nine in Dar es Salaam and twenty-three in Tanga) remained under training at the end of the year.

RURAL MEDICAL AIDS

111. Training of Rural Medical Aids continued at Mwanza and Tukuyu throughout the year. At the former Centre all six final year students completed the course successfully, two of them obtaining distinction. Because of the shortage of candidates of educational Standard X it was found necessary to accept candidates of Standard VIII. The result has been disappointing, since of eleven students selected for training at Mwanza, four left the course during the year as being unsuitable for further training, and there is no doubt that the extra two years of schooling greatly increases the capacity of students to understand and absorb the basic principles required for their training.

112. As a result of the recommendations of the Rural Medical Services Committee the Training Centres at Mwanza and Tukuyu will be taken over and administered by the Medical Department in 1949. Hitherto, these Centres have been administered by the Native Authorities as independent organizations supporting themselves by fees charged to the sponsors of students. It is of interest to note that since its foundation in 1935 by the Native Treasuries of the Sukuma Districts, a total of 115 men have successfully completed the course at Mwanza.

MIDWIFERY

113. Three students completed a two year course at the African Maternity Hospital, Dar es Salaam.

SANITARY INSPECTORS

114. During the year two courses were held in Dar es Salaam for Probationary African Sanitary Inspectors. The first of these was attended by seven men, all of whom had had experience, either in the Forces or in Rural Dispensary work. All these students passed the Departmental examination at the end of the course.

115. Results were much less satisfactory with the second batch of students which comprised ten men of educational Standard X who had recently left school. One of these men failed the examination at the end of the course, and the standard of papers submitted by the remainder was such that it is proposed they should all sit the examination again after further training in the Districts to which they have been posted.

116. The instruction given on these courses included practical field demonstrations, and a short course on Meat Inspection, as well as lectures by Medical Officers, Health Inspectors and the Senior African Sanitary Inspector. In addition, for part of each day students accompanied the African Sanitary Inspectors in their District visits as observers.

MALARIA ASSISTANTS

117. The system of training has become more established and two courses for recruits, each lasting four months, were held during the year. A total of nineteen men qualified on these courses. A senior course lasting two weeks was held in August for six men, most of whom were ex-army Malaria Assistants. It is proposed to hold at least two such senior courses per annum in future.

XIV.—EPIDEMIC DISEASES

118.

SMALLPOX

Territorial Incidence

	1944	1945	1946	1947	1948
Cases	5,735	12,283	12,671	2,960	1,206
Deaths	38	1,815	1,935	616	209
Per cent Fatality	0·7	14·78	15·27	20·7	17·3

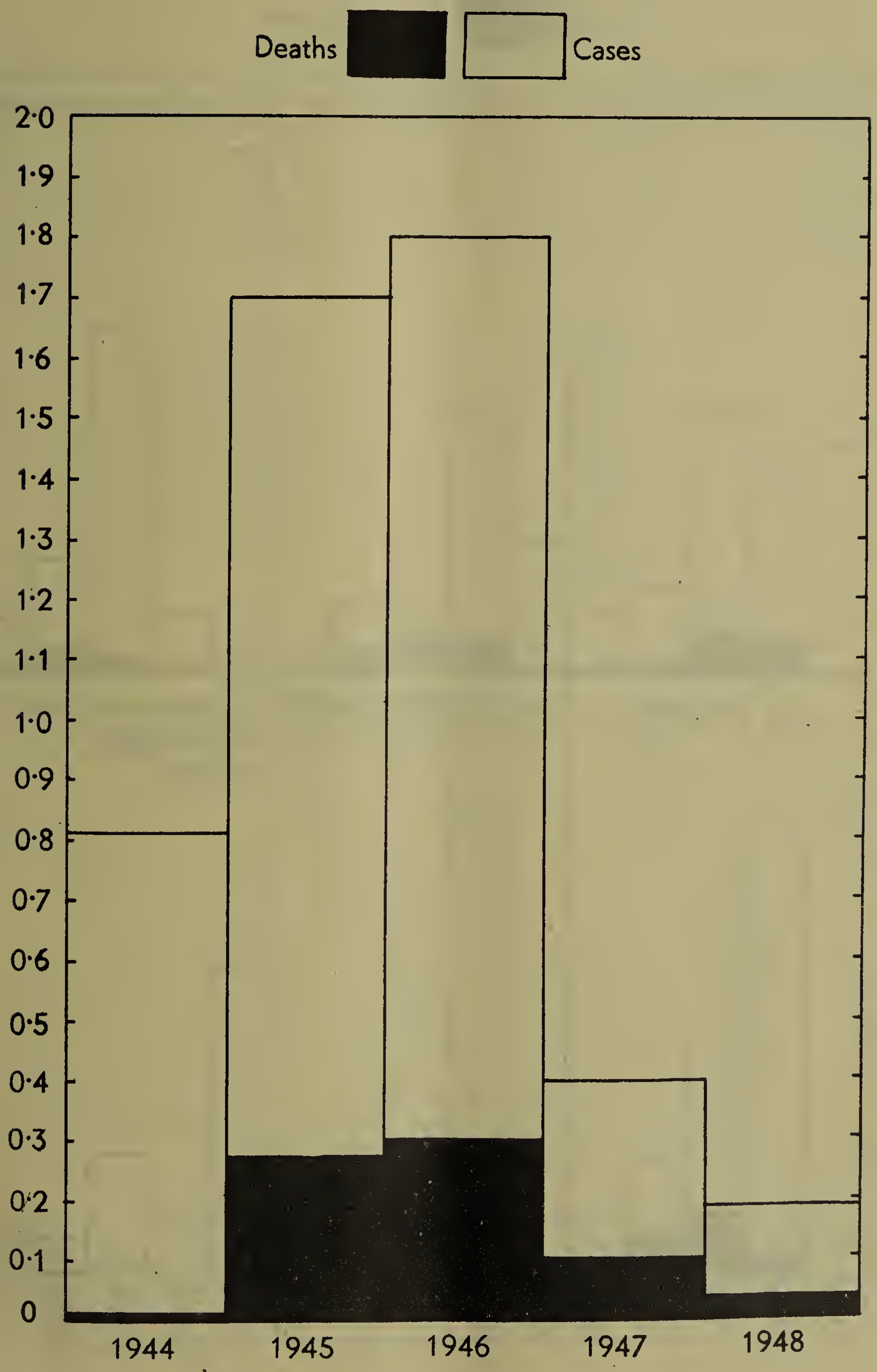
Provincial Incidence

	1944	1945	1946	1947	1948
Central :					
Cases	1,594	1,336	1,725	489	364
Deaths	11	225	285	73	58
Per cent Fatality	0·6	16·8	16·5	14·9	15·9
Eastern :					
Cases	625	186	440	42	24
Deaths	—	—	39	8	1
Per cent Fatality	—	—	8·8	19·0	4·2
Lake :					
Cases	1,988	3,558	1,987	921	162
Deaths	13	405	497	220	15
Per cent Fatality	0·6	11·38	25·01	23·8	9·3
Northern :					
Cases	339	106	129	22	69
Deaths	3	25	33	2	8
Per cent Fatality	0·9	23·6	25·5	10·0	11·6
Southern :					
Cases	128	449	2,546	237	399
Deaths	8	11	160	30	84
Per cent Fatality	6·2	2·45	6·28	12·7	21·1
Southern Highlands :					
Cases	195	3,081	1,692	832	111
Deaths	—	93	426	243	28
Per cent Fatality	—	3·02	25·17	29·2	25·2
Tanga :					
Cases	502	50	97	51	3
Deaths	2	—	18	10	—
Per cent Fatality	0·4	—	18·5	19·6	—
Western :					
Cases	364	3,517	4,055	386	74
Deaths	1	1,056	477	30	15
Per cent Fatality	0·3	30·03	11·7	7·8	20·3

119. The overall picture shows signs of further abatement of the epidemic prevalence of the disease. There have, however, been several epidemic outbreaks of smallpox in the Southern Province, whilst towards the end of the year there was considerable increase in the number of cases reported in the

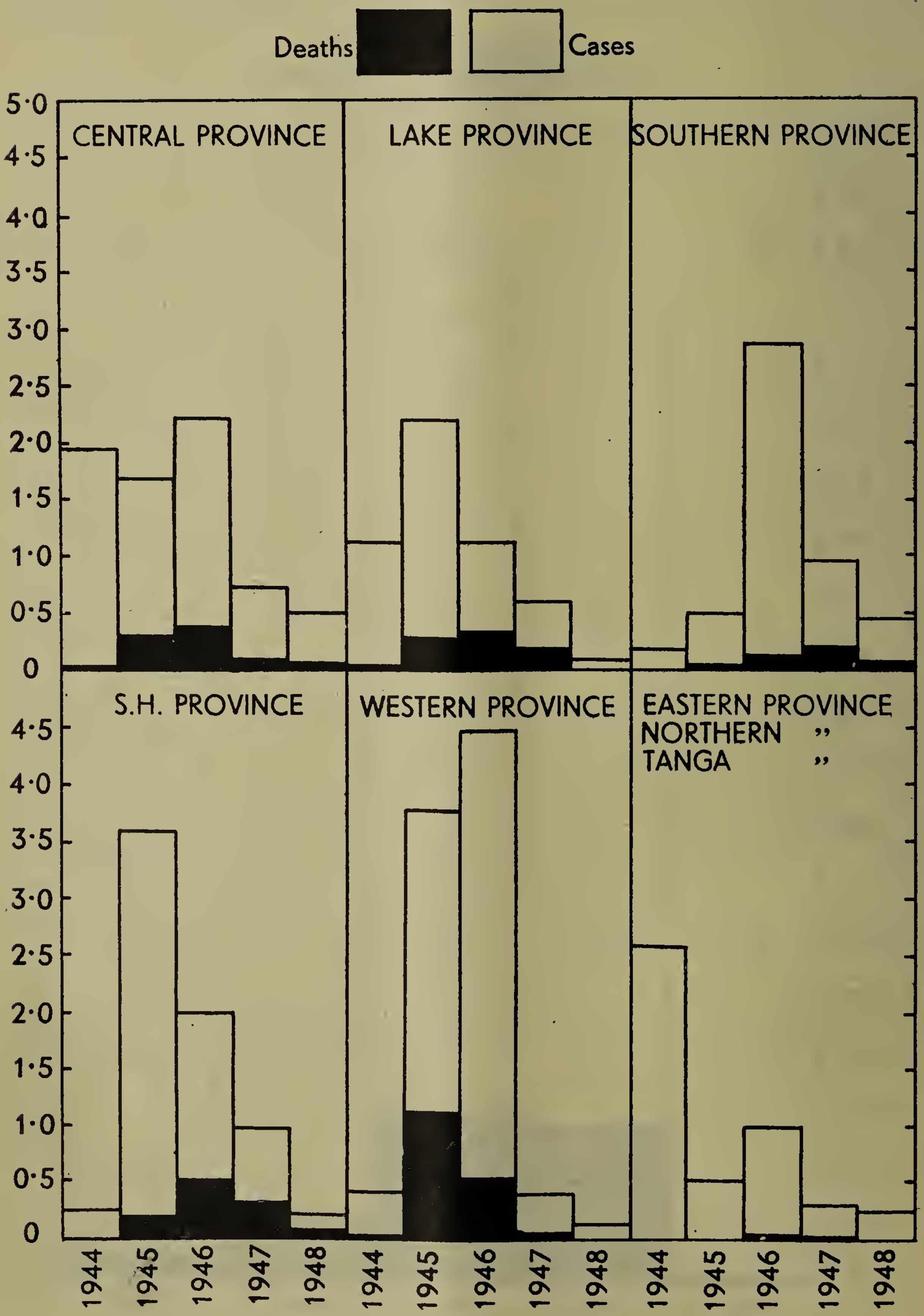
SMALLPOX

Territorial Incidence per 1,000 Population
1944-48



SMALLPOX

Provincial Incidence per 1,000 Population
1944-48



Arusha and Masai Districts of the Northern Province. For the first time since 1944 there has been a fall in the Territorial fatality percentage, although in the Southern Province the fatality rate appears to be rising.

120. There were four outbreaks of variola major in different parts of the Southern Province, and it is difficult to account for the scattered and sporadic nature of these outbreaks. It is possible that virulent strains are being introduced from Portuguese East Africa, or it may be that local attenuated alastrim virus tends to acquire enhanced virulence recognized as variola major. Over 1,000,000 persons have been vaccinated in this Province during the last eight years, and it appears that the continued high incidence of the disease may be due partly to degraded lymph arising from unsatisfactory field storage methods, as well as unreliable "follow up" by the vaccinators. In the Lake Province also there is similar indication of inactive lymph; a successful vaccination rate of less than sixteen per cent being recorded in Mwanza Township. A total of 1,325,850 doses of vaccine lymph were distributed during the year as follows :—

	Doses
Central Province	206,400
Eastern Province	169,800
Lake Province	267,500
Northern Province	103,400
Southern Province	235,250
Southern Highlands Province ...	96,000
Tanga Province	56,200
Western Province	191,300
	1,325,850

CEREBRO-SPINAL MENINGITIS

121.

Territorial Incidence

	1944	1945	1946	1947	1948
Cases ...	3,463	2,537	1,789	1,614	987
Deaths ...	645	546	448	380	199
Per cent Fatality	18·6	21·5	25·04	23·5	20·2

Provincial Incidence

Province	Cases	Deaths	Fatality Rate per cent
Central	70	7	10·0
Eastern	43	11	25·6
Lake	473	118	24·9
Northern	8	3	37·5
Southern	151	14	9·3
Southern Highlands	21	7	33·3
Tanga	40	17	42·5
Western	181	22	12·2

122. There has been a further decrease in the incidence of this disease and in the fatality rate. Although the incidence in the Lake Province was again relatively high, there was a considerable decrease in the number of cases as compared with 1947. The highest incidence occurred in the Singida District where forty-one cases with seven deaths were reported in July.

123. *Human Trypanosomiasis*

Province	1946		1947		1948	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Central :						
Total	164	8	209	16	151	40
Kondoa-Irangi	154	6	196	13	146	39
Singida (Mkalama)	10	2	13	3	5	1
Eastern :						
Total	12	34	42	16	5	—
Ulanga	12	34	42	16	5	—
Lake :						
Total	101	11	61	8	64	9
Biharamulo	51	11	41	7	53	7
Musoma	46	—	17	—	9	2
Mwanza	4	—	3	1	2	—
Northern :						
Total	158	22	48	15	15	5
Mbulu	158	22	48	15	15	5
Southern :						
Total	34	10	38	11	67	17
Kilwa (Liwale)	1	—	9	3	—	—
Masasi	7	1	7	4	—	—
Tunduru	24	9	18	3	46	4
Songea	2	—	3	—	1	—
Lindi	—	—	1	1	20	13
Southern Highlands :						
Total	4	—	1	—	4	—
Chunya	4	—	1	—	4	—
Western :						
Total	333	136	254	130	375	129
Kigoma	—	—	1	1	22	1
Buha	104	71	76	56	105	93
Kahama	143	52	98	29	84	—
Ufipa	—	1	—	—	—	—
Mpanda	—	—	—	—	18	19
Totals ...	806	221	653	196	681	200

NOTE.—Statistics showing the case mortality in the Kahama District of the Western Province are not included in the Report this year, since true figures showing the number of deaths in 1948 are not available.

124. The total number of cases reported in 1948 shows a very slight increase over the 1947 figures due to a sharp rise in incidence in the Western Province. There was a considerable decrease in the number of cases reported from the Central and Eastern Provinces.

125. *Central Province.*—Although there was a fall in the total number of cases as compared with 1947, a significant number of cases continued to be reported from the Serya, Baba, and the adjoining areas. Many of these had contracted the disease while bush clearing or while collecting pupæ. Sufficient confidence has not yet been built up to ensure early notification of the disease, only seven per cent of the cases which were recorded having reported for treatment within one month of falling ill.

126. *Lake Province.*—In the Biharamulo District, although the total number of cases reported is much the same as in 1947, the distribution is different, no less than twenty-five out of thirty-seven cases being reported from the Busambiro Dispensary on the main road from Bukoba to Kahama. The flies begin about thirty miles out of Bukoba and follow traffic for many miles.

127. *Southern Province.*—The distribution of cases this year has been confined to three Districts, and returns show a very heavy increase in the number of cases in Masasi District. A Scout was sent to this District in August, and the result of his activities has been the discovery of forty-three cases up to the end of December.

128. *Western Province.*—There appears to have been some breaking down of the control of settlements in the Tabora and Buha Districts, with a consequent rise in incidence of the disease. The usual seasonal increase in the last quarter of the year was magnified into an outbreak of some significance in the area south of Tabora from Sikonge to Kitunda. The incidence among females at the latter place was fifty per cent of the total population, and a random survey of 100 ''normal'' villagers at Membi near Sikonge showed that five were infected, as indicated by smears showing trypanosomes in their peripheral blood.

Bubonic Plague

129. The rat plague which occurred on the Iramba Plains in July to September, 1947, spread to humans at the end of that year. The first case was reported in February from Hopi at the foot of the escarpment, and the epidemic spread rapidly, reaching a peak at the end of February, and as rapidly died away at the end of the rains. Thereafter a few sporadic cases continued to occur up to the end of the year. In all 312 cases were reported, with 178 deaths.

130. Control methods aimed at the destruction of rats by poisoning, and the destruction of fleas by gammexane. The Senior Pathologist cited *R. rattus* as the proved reservoir host, though sylvatic reservoirs are also suspected. The prominent vector flea was identified as *Xenopsylla brasilliensis*.

XV.—ENDEMIC DISEASES

131. *Malaria and Blackwater Fever.*

Malaria :	1944	1945	1946	1947	1948
Out-patients	85,968	93,928	96,523	118,738	124,242
In-patients	9,667	10,778	10,631	13,962	13,796
Deaths (In-patients)	184	183	192	264	264
Fatality per cent (In-patients)	1·8	1·6	1·8	1·9	1·9
Blackwater Fever :					
Out-patients	31	13	10	8	—
In-patients	72	46	54	38	23
Deaths (In-patients)	21	13	9	12	5
Fatality per cent (In-patients)	29·18	28·26	16·67	31·5	21·7

132. An account by the Malariologist appears elsewhere in this report. The incidence of malaria appears to be rising in the Southern Province, though it is questionable whether this trend is a real increase or a greater clinical recognition of the diagnosis since the year showed no climatological or other abnormal features which might account for this increase. The out-patient malaria cases in the Province were 160 per cent greater than the average for 1941-47, and the microscopically diagnosed cases were forty-one per cent greater than the average for those years.

133. In the Eastern Province the incidence of malaria at Kimamba and Kilosa has been exceptionally high; the number of out-patients attending Kilosa Hospital for this disease representing 80 per cent of Kilosa and 150 per cent of Kimamba residents.

134. There has been a further drop in the number of cases of blackwater fever, and the mortality rate for this disease, which had risen in 1947, has fallen from 31·5 per cent to 21·7 per cent.

135. *Relapsing Fever.*

	1944	1945	1946	1947	1948
Out-patients	2,951 ...	2,998 ...	3,844 ...	3,605 ...	3,004
In-patients...	1,683 ...	1,815 ...	1,926 ...	1,694 ...	1,223
Deaths (In-patients) ...	38 ...	33 ...	32 ...	27 ...	33
Fatality per cent (In-patients)	2·3 ...	1·8 ...	1·6 ...	1·5 ...	2·7

136. In the Central and Western Provinces the disease appears to be increasing in townships and camps. (In Tabora Township seventy-seven per cent of the native houses were found to be tick infested). Although mortality is low, relapsing fever causes a great deal of ill-health, paresis, visual disturbance, abortions, miscarriages and premature births. Shortage of gammexane and difficulty in carrying out prophylactic measures, combined with the refusal of patients to enter hospital for treatment are prime factors in preventing effective control of the disease.

137. Mr. F. A. Knowles, Health Inspector, with a team of Africans trained in the use of gammexane as an anti-tick measure, made a tick survey of the Lake Province in July. Heavy infestations were found in mud-floored African houses in all the main centres of population, though tick counts were low in rural villages, except in Bukoba District villages frequented by Ruanda-Urundi labour. In Sukumaland, however, the distribution appears to be more general.

138. The Senior Medical Officer, Eastern and Southern Provinces reports that in the Southern Province the disease is spreading along a labour route running east and north from Songea and Muheza to Liwale. Liwale Township is now heavily infested with *O. moubata*, and the number of cases of relapsing fever reported in Liwale in 1948 is the highest ever recorded. At the same time there is no doubt that generally speaking the majority of cases of relapsing fever are never reported or treated.

139. With assistance from the Agricultural Department and the Medical Department, the Local Authority of Morogoro carried out a large scale demonstration of the effectiveness of gammexane in reducing the tick population of the non-European dwelling places of that town. A corresponding fall in the number of cases of relapsing fever in the area has been recorded, and it is hoped that this may provide an example upon which the attack on the vectors of relapsing fever by Local Authorities and employers of labour may be patterned. This disease is one in which an enlightened community can do something for themselves in its local control.

140. *Schistosomiasis.*

	1944	1945	1946	1947	1948
Out-patients	8,747 ...	10,324 ...	10,671 ...	9,217 ...	14,036
In-patients...	452 ...	474 ...	672 ...	620 ...	723
Deaths (In-patients) ...	13 ...	3 ...	5 ...	10 ...	14
Fatality per cent (In-patients)	2·88 ...	0·68 ...	0·74 ...	1·6 ...	1·9

141. There has been a considerable increase in the total number of cases reported this year, and the recorded incidence of the disease in the Southern Province has been higher in 1948 than ever before; the largest number of cases being reported in Tunduru District. The causative organism in most cases was *S. hæmatobium*, but *S. mansoni* was also found in a few places.

142. The Senior Medical Officer, Northern and Tanga Provinces reports that *S. hæmatobium* is very prevalent in the South-East Pare region. Preventive measures under the direction of the Medical Officer of Health, Tanga, included treatment of the Same and Kisiwani streams with copper sulphate solution, clearance of weeds and trimming of the banks for destruction of the intermediate snail hosts.

142. Fifty-five cases occurred in October among boys of the Ibadakuli School, Shinyanga, in the Lake Province. It is believed that the infection was contracted through bathing in pools of stagnant water in the river bed behind the school.

143. In a Territory where water supplies are, to a great extent, derived from ponded surface sources and shared by man and beast, and where periodic drought conditions make potable water a precious commodity, the objective of water development in providing water supplies must somehow find a means of convincing the primitive consumers that human sources of supply must be safeguarded by and for the community. This is a problem of public health education that has not yet been explored.

144. *Ankylostomiasis.*

	1944	1945	1946	1947	1948
Out-patients	21,630 ...	20,556 ...	25,327 ...	23,720 ...	23,544
In-patients...	2,089 ...	2,113 ...	2,509 ...	2,633 ...	2,746
Deaths (In-patients) ...	124 ...	151 ...	142 ...	152 ...	131
Fatality per cent (In-patients)	5·95 ...	7·15 ...	5·65 ...	5·77 ...	4·77

145. As mentioned in the 1947 Report, it is exceedingly difficult to assess the incidence of this disease, and there is little new to report this year, except from Kilosa and Kimamba in the Eastern Province, where ankylostomiasis figures have reached epidemic proportions, thirty per cent of the inhabitants of Kilosa and seventy per cent of the inhabitants of Kimamba having attended hospital as out-patients. Unfortunately the majority of patients do not report sick until the infection is in an advanced stage and they are suffering from severe anæmia, so that the actual incidence of the disease is probably a great deal higher than the recorded figures.

146. A solution to this problem may be realized when the elements of preventive medicine have been "married" to the medical care programme, and the community has come to recognize the futility of depending solely on the "magic" of treatment. It is doubtful if the adult will be prepared to change his habits, but the hope lies in a positive objective of this character in the training of school children in the acquirement of an enlightened social conscience, with the expectation that he may discover that health may be found through his own efforts in preventing controllable disease. The control of this disease continues to offer a challenge which will not be resolved without the collaboration of enlightened public opinion; a problem in "combined operations".

158. The number of cases continues to increase, though the mortality rate remains much the same. Bacteriological verification of the causative agent of this diagnosis is seldom undertaken. We are therefore without knowledge of the extent to which helminthic, viral or bacterial agents contribute to this symptomatic diagnosis. With the availability of the sulphonamides and penicillin the fatality rates do not show the decline that would be expected if the pneumococcal pneumonias were generally experienced.

XVI.—PRINCIPAL LETHAL DISEASES

159. *In-Patients in Government Hospitals*

Disease	(1) Number of Cases	(2) Per cent Total Cases	(3) Number of Deaths	(4) Per cent Fatality of Disease
Malaria and Blackwater Fever	13,808	18·79	269	1·9
Pneumonia	4,575	6·23	419	9·2
Ankylostomiasis	2,746	3·74	131	4·8
Dysentery and Enteritis	2,549	3·47	214	8·4
Pulmonary Tuberculosis	1,298	1·77	228	17·6
Relapsing Fever	1,223	1·67	33	2·7
Non-Pulmonary Tuberculosis	671	0·91	24	3·5
The Anæmias	586	0·79	76	12·9
Human Trypanosomiasis	305	0·41	28	9·2
The Enteric Group	282	0·38	34	11·9
Cerebro-Spinal Meningitis	259	0·35	122	47·5
Smallpox	87	0·12	5	5·7
All Other Diseases	45,098	61·37	1,537	3·4

Column (1) shows the volume of distribution, and as such provides a crude indication of hospital morbidity experience. In the absence of a "breakdown" related to population groups served by the various reporting medical centres, this information is of very little epidemiological value. If anything, this probably indicates a measure of patronage of medical centres for the treatment of diseases for which we have effective specific treatment weapons supplementary to "vis medicatrix naturæ". Column (4) indicates to some extent the relative ineffectiveness of our weapons as utilized. Whether the higher fatality rates are due to postponement in seeking the medical services available or to defectiveness in our clinical procedures is not determinable from the data available. Evaluation of these and other relevant factors can only be anticipated as clinical records and hospital practice reach a standard that encourages clinical officers to review and compare the results of controlled individual experience. A single-officer medical station will rarely inspire or allow the incumbent to indulge in this form of "medical accountancy". Multiple-officer establishments are to be encouraged to develop clinical staff committees for this form of organized practical research and study. The time has not yet been reached in this Service when such procedure can be demanded by the central administrative direction.

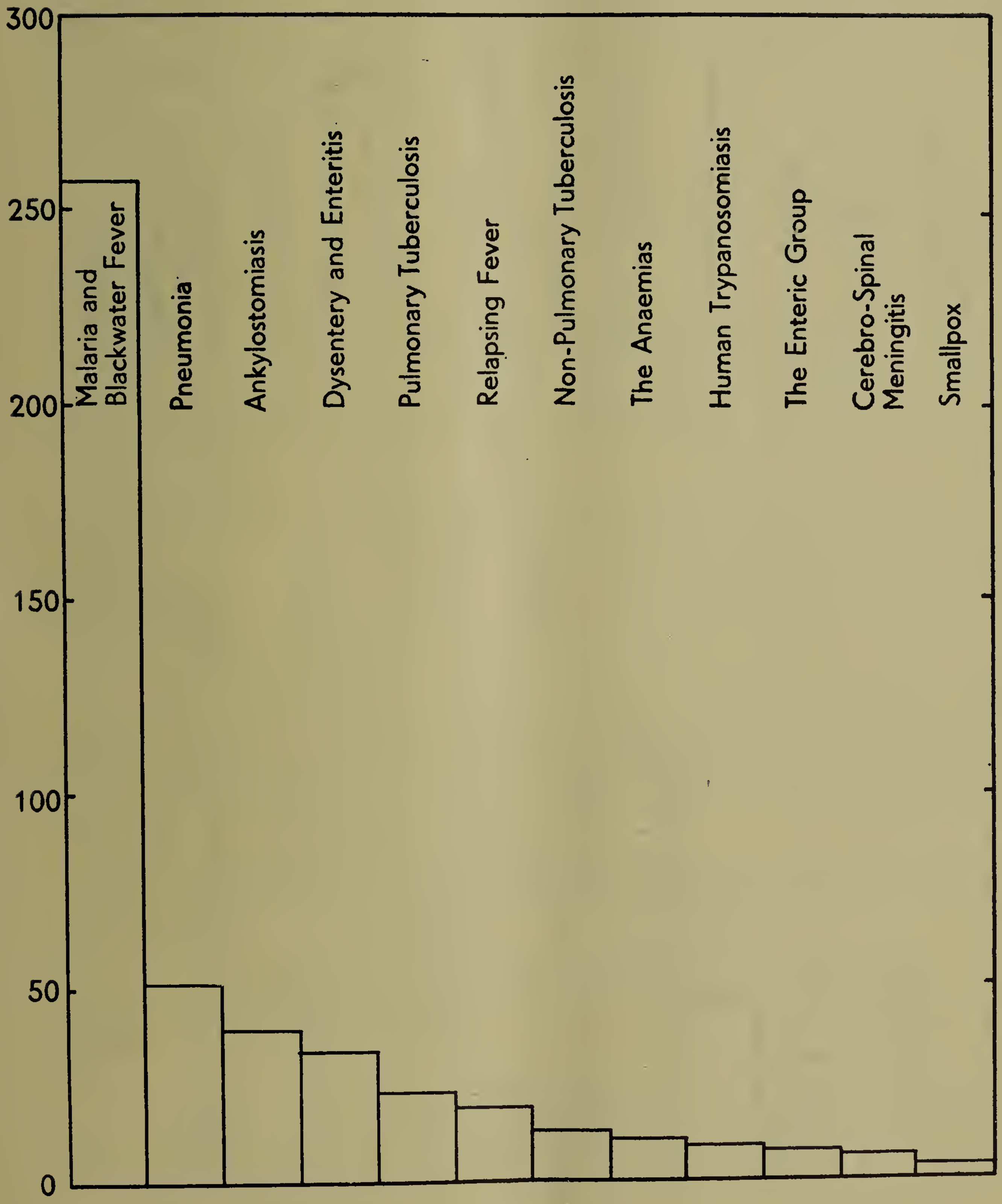
XVII.—MORBIDITY AND MORTALITY EXPERIENCE—GENERAL DISEASES

Government Medical Centres

160. Attention is invited to the group breakdown of Table 12, which shows an in-patient/outpatient ratio of 1 :13·6. While this assembly does not follow conventional statistical pattern, it has utility in indicating the relative weight

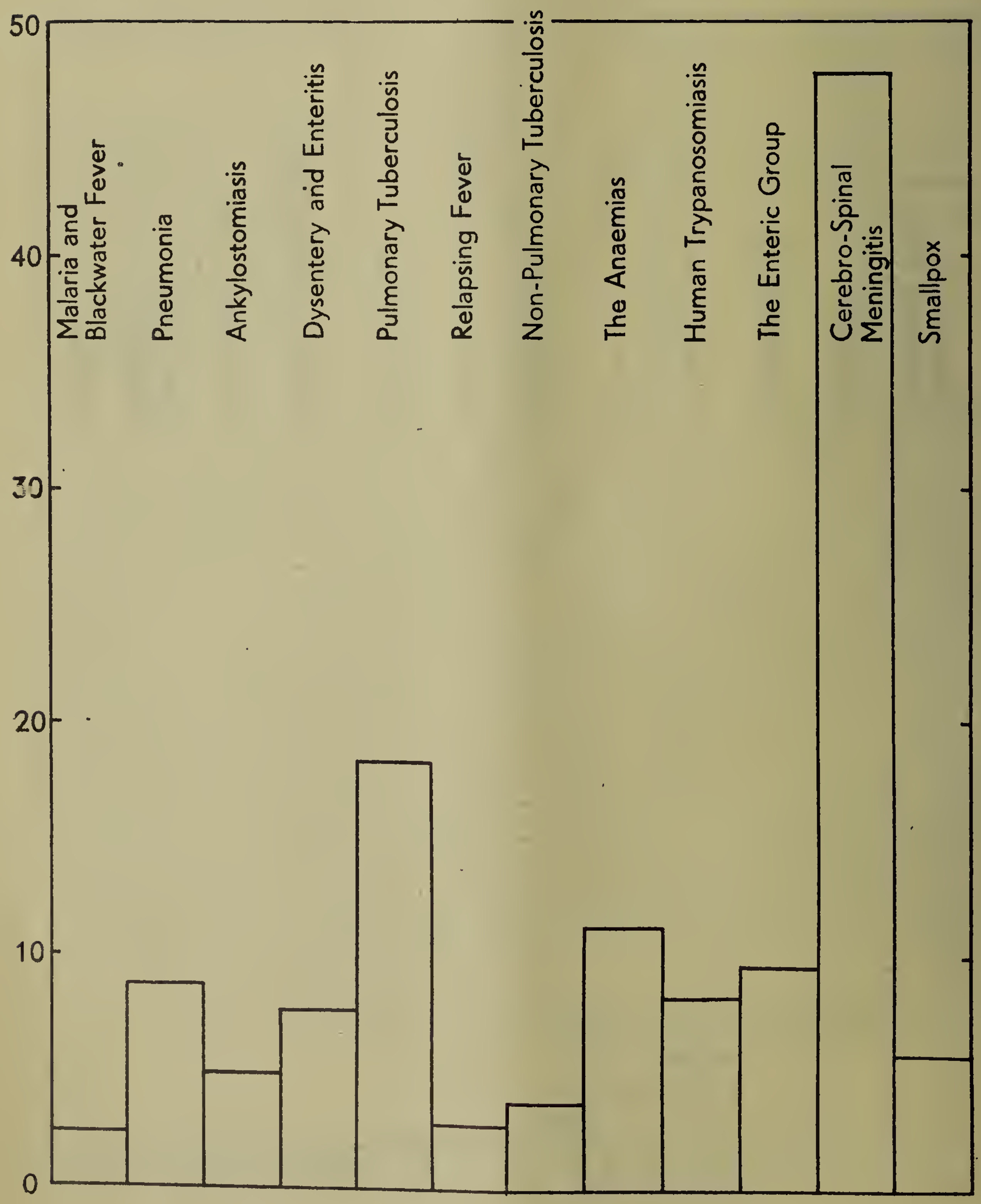
MORBIDITY RATE

per 1,000
In-patient Admissions



CASE FATALITY RATE

Disease Specific Fatality Rate
per 100 cases



of effort that could be directed towards prevention of the controllable causes of disease and disability requiring clinical service. True economy of medical effort cannot be realized until there is both public and clinical recognition of this challenging array under the Infective and Parasitic Diseases.

161. Recognition of these trends, the determination of their contributory causes, and their control can be expected in the field when the clinical perspective of the general duty Medical Officer is coupled with a balanced preventive outlook, and when the unrealistic state of mind has been abandoned that reckons treatment of diseases and their prevention are separate specialist functions that do not require co-ordinated effort at all levels. It is not enough to have annual central recognition of preventable wastage of health and clinical effort. ''Campaigns'' are not the answer, but de-centralized curiosity about the problems and their local solutions through teamed effort may be. How can the professional man in the field be inspired? How can the people who patronize our medical centres be convinced?

XVIII.—REPORT OF THE SENIOR DENTAL SURGEON

161. The Senior Dental Surgeon was on leave from April to September and since appointment of Dental officers to fill the establishment was not completed until September, work during the early part of the year was seriously restricted by shortage of staff.

162. Work at the Sewa Haji Hospital in Dar es Salaam has demonstrated the high prevalence of oral sepsis among Africans in urban areas. These patients require a considerable amount of treatment, which will ultimately include the provision of dentures. African Dental Assistants are badly needed, but up to the present time only one African has come forward for training.

163. *Statement of work done by the Dental Division during the year.*

Station	Attendances	Fillings	Extractions	Scalings	X-Rays	Root Treatment	Dentures	Repairs	Jaw Injuries
Dar es Salaam ...	4,155 ...	1,704 ...	1,449 ...	437 ...	300 ...	8 ...	315 ...	203 ...	15
Tanga	1,680 ...	517 ...	1,040 ...	131 ...	32 ...	4 ...	77 ...	32 ...	4

XIX.—REPORT OF THE OPHTHALMIC SPECIALIST

164. No unusual trends are reported by the Ophthalmic Specialist. Of 2,250 out-patients examined and treated by him during the year, 341 were found to be suffering from Trachoma, giving a general incidence of fifteen per cent among the population examined. Fifty per cent of these cases were symptomless cases detected at School examination.

165. In addition, the Ophthalmic Specialist examined in-patients at Tanga, Dar es Salaam, Arusha, Moshi, Tabora and Dodoma, and performed 128 eye operations.

XX.—MEDICAL STORES

166. The values of receipts and issues for the past three years are as follows :—

	Receipts				Issues		
	£	s.	cts.		£	s.	cts.
1946	90,190	11	61	...	103,954	11	08
1947	75,057	10	88	...	85,735	11	02
1948	103,786	14	35	...	100,362	19	96

Value of stock on hand at 31st December, 1948 was £68,753 15s. 12cts.

167. The value of Galenicals received from the Pharmaceutical Laboratory during the year was £8,994 2s. 4cts. compared with £7,025 14s. 31cts. in 1947 and £5,592 16s. 32cts. in 1946.

168. The delivery of equipment and instruments on overseas order has not been good, and there appears to be little sign of improvement. The shipment of dressings was particularly short during the year, and in the case of gauze and plain lint especially, very little was received of the supplies ordered in June of 1947.

169. The appointment of Mr. R. Darwell Stone, Radiological Technician, has been of benefit to the Department so far as X-Ray and Physiotherapy equipment is concerned, particularly as regards maintenance of apparatus and handling of spares, both in Dar es Salaam and throughout the Territory.

170. Visits were paid by the Pharmacist to medical stations in the Lake, Western and Southern Provinces during the year. It is regretted that it was not possible for him to extend these visits to other area.

XXI.—REPORT OF THE SENIOR PATHOLOGIST

171. The Senior Pathologist visited the Tanga Laboratory in February, June and October, and Mpwapwa in February. The Pathologist, who had been on leave earlier in the year, went to Singida in November to investigate an outbreak of plague in the Sekenke area. *P. pestis* was isolated from rats and humans. The rat hosts were identified as of the *R. rattus* type. The predominant vector flea was *Xenopsylla brasilliensis*. Specimens of wild rodents suspected of being reservoir hosts were shipped to The Rodent Museum, Pretoria, and identified as *R. alexandrinus*.

Laboratory Headquarters, Dar es Salaam

Routine and Hæmatological Divisions

172. Special work was undertaken to investigate the sickle cell trait in Africans. The usual laboratory methods for sickle cell trait determination are far from satisfactory; and during the year a new and highly satisfactory method was devised. Using an isotonic solution of Sodium Hyposulphite with about one sixth of it's volume of blood, oxyhæmoglobin is rapidly dissociated, causing the sickling of the red cells to be immediately revealed in subjects with the sickle cell trait. Details have been submitted for publication in the *Journal of Clinical Pathology*.

173. In the second half of the year sickle cell trait surveys were carried out among boys at a school in Dar es Salaam and among babies from the Maternity and Child Welfare Clinic. Of 321 schoolboys examined, sixty-four (i.e. twenty per cent) were found to be sickle cell trait positive.

174. A manual entitled "A Guide to the Clinical Pathology Laboratory Facilities in Tanganyika", which should form a useful basis for further work, was produced by the Pathologist during the year.

CLINICAL PATHOLOGY AND PARASITOLOGY

175. *Urine.*

Total number of specimens examined	**1,996**
Albumen positives	686
Sugar positives	76
Acetone bodies positives	8
Casts positives	52
R.B.C. positives	219
Pus positives	875
Bile pigment positives	64
Tubercle bacilli positives	3
Schistosoma haematobium positives	5
Other findings—	
(*Trichomonas vaginalis* 2 Spermatozoa 4 Sod. Chloride estimation 9	15

176. *Fæces.*

Total number of specimens examined	**2,066**
Occult blood positives	76
R.B.C. positives	131
Pus positives	321
Ascaris ova positives	21
Oxyuris ova positives	3
Hookworm ova positives	198
Strongyloides larvæ positives	17
Schistosoma mansoni ova positives	6
Taenia saginata segment positives	1
Entamœba histolytica cysts positives	9
Entamœba histolytica vegetative forms positives	8
Giardia lamblia positives	5
Other findings—	
Flagellates 2 Charcot leyden crystals 52 *Trichuris trichiura* ova 55 Hookworm larvæ 2	111

177. *Blood Films.*

Total number of films examined	**5,049**
Malarial parasites positives	390
Spirillum duttoni positives	10
Trypanosomes positives	—
Microfilaria bancrofti positives	2
Microfilaria perstans positives	—

178. *C.S.F.*

Total number of routine examinations	**251**
Cell Counts pathological	87
Pandy's Test positive	71

179. *Sputum.*

Total number of specimens examined	**237**
Tubercle bacilli positives	40

180. *Nasal Smears.*

Total number of specimens examined	**41**
B. leprae positives	19

181. *Urethal and Vaginal Smears.*

Total number of specimens examined	**188**
Gonococci positives	35
Gonococci negatives	111

182. *Pus and Body Fluids.*

Total number of specimens examined	**21**

183. *Darkground examinations.*

Total number of specimens examined	**48**
Positives for *Treponema pallidum*	11

184. *Hæmatology.*

	Examinations
Hæmoglobin estimation	494
Red Cell counts	152
White Cell counts	291
White Cell and differential	272
Reticulocyte counts	10
Sedimentation rates	58

185. *Hæmatology.*

	Examinations
Blood Sickling	16
Coagulation	3
Bleeding time	3
Blood Fragility	1
Mean Corpuscular Volume (M.C.V.)	14
Mean Corpuscular Hæmoglobin concluded (M.C.H.C.)	14

	Examinations
Blood Grooping	153

186. *Miscellaneous.*

Specimens examined	3

Scraping from Ear positive for mycelial threads	1
Abdominal] fluid Negative... ...	1
Fluid from swelling negative ...	1

Section of Morbid Histology

187. Three hundred and fifty-six specimens were examined during the year with the following results :—

Heart :

Myocardial fibrosis	1
Ulcerative endocarditis	2

Lung :

Tuberculosis	4
Lobar pneumonia	3
Chronic vascular congestion	1

Liver :

Cirrhosis...	6
Congenital syphilis	1
Fatty degeneration	6
Necrosis	3
Carcinoma (Secondary)	1
Chronic venous congestion	3
Acute yellow atrophy	1
Leukæmia	1
Undetermined	2

Pancreas :

Carcinoma	1

Spleen :

Fibrosis	3
Carcinoma (Secondary)	1
Leukaemia	1

Bowel :

Fibromatosis	2
Carcinoma	1
Inflammatory	4
Tuberculosis	1
Mesenteric cyst	1

Appendix :

Inflammatory	12
Bilharzial tumour	1

Central Nervous System :

Tuberculosis	1
Cerebral Malaria	1
Pneumococcal meningitis	1
Tuberculous meningitis	1
Sarcoma	1
Atrocytoma	1
G.P.I.	1
Sympathetic ganglia	1

Kidneys :

Nephritis	5
Fibrosis	3
Carcinoma	1

Bladder :

Carcinoma	2
Bilharzial ulceration	1

Prostate :

Fibrosis	1
Adenoma	3
Carcinoma	1

Testicle :

Inflammatory	1
Fibrosis	1
Gumma	2
Undetermined	1

Uterus :

Endometrial scrapings...	40
Fibroids	10
Products of conception	2
Carcinoma of body	1
Inflammation	3
Vesicular mole	2
Cast	1

Cervix :

Carcinoma	5
Erosion	2
Polyp	3
Cyst	1
Normal	4

Ovary :

Cysts	6
Carcinoma	1

Lymphatic Glands :

Inflammations	13
Tuberculosis	4
Filariasis	1
Typhoid	1
Lymphosarcoma	2
Carcinoma (Secondary)	2
Hodgkin...	1
Leukæmia	1

Parotid Gland :

Mixed parotid tumour	4
Carcinoma	3

Thyroid Gland :

Adenoma	4
Colloid goitre	4
Carcinoma	1

Breast :

Carcinoma	10
Fibro-adenoma	3

Skin and Connective Tissue :

Squamous Carcinoma	29
Papilloma	7
Rodent ulcer	1
Fibromata	16
Ulcers and inflammatory lesions	13
Granulomata (non-specific)	15
Sarcomata (skin)	2
Fibro Sarcomata	7
Round cell sarcoma	1
Secondary carcinoma	1
Lipomata	4
Cyst	1
Chondromata	1
Tertiary yaws	1
Onchocercus	1
Gumma	1
Compound ganglion	1
Dermoids	2
Normal tissue	4

Bones :

Tuberculosis	1
Osteo myelitis	2
Leukæmia	1
Lipoma	1
Osteoclastoma	1
Fibrous	1
Adenocarcinoma (antrum)	1
Epithelial ondotome	1
Cysts	2

Eye :

Inflammatory	1
Squamous carcinomata	4
Sarcomata	4

Medico Legal Section

188. Sixty-seven complete post-mortem examinations were carried out by order of the Coroner. Of these eight were due to homicide, thirty-eight to accident, four to suicide, and seven were attributed to natural causes. One hundred and ninety-two Police exhibits were examined.

Bacteriological and Serological Section

189. The Bacteriological Section continued to expand its work during 1948. There was a steady increase in the demand for routine bacteriological investigations, and it was found necessary to move the Section to larger quarters where it was combined with the Serological Section to form one unit.

190. The increase in the number of specimens examined is shown in the following table :—

Type of Examination	1947	1948
General Bacteriology	782	1,221
Bacteriological Examination of Water	300	657
Wassermann-Kahn Tests	2,231	3,560
Agglutination Tests (Widals, etc.)	203	444

191. Standard techniques for routine bacteriological and serological examinations were drawn up and where necessary existing methods were overhauled and brought into line with modern practice. The main function of the Section has been the routine examination of specimens from the Dar es Salaam Hospitals Group, and this must continue to be the case until further staff are trained and supplies of apparatus and equipment improve.

192. A small scale bacteriological survey of the milk in Dar es Salaam was carried out during the year. The number of samples examined was too small for the results to have any statistical significance, but some useful information was obtained on the bacterial flora of the milk, its pasteurization and keeping quality.

193. Several uncommon or rare types of Salmonella were isolated, the most interesting being *Salm. chandans* which was isolated from the pleural effusion, blood, fæces and pericardial fluid of a young adult African. So far as is known

this is the first time that *Salm. chandans* has been isolated from an infection in man. A new type Salmonella which it is proposed to call *Salm. mgulani* was isolated from the stool of a European male, aged twenty-three years.

194. Typical dysentery bacilli were isolated from forty-four cases of clinical dysentery, *Shigella flexneri* being found in thirty-two cases, and *Sh. sonnei* in the remaining twelve. *Sh. shigæ* was not isolated on any occasion.

195. *C. diphtheriæ* was isolated from seven Asian and African cases of diphtheria. Six of the strains were of mitis type, and the remaining one was a gravis strain. All these strains proved virulent to guinea pigs. One mitis strain, which proved avirulent to a guinea pig, was isolated from a child of four years of age who had a sore throat. The child developed no symptoms or *sequelæ* of diphtheria.

196. *Shigella flexneri* was found to be the causative organism of a case of vulvo-vaginitis in a European girl aged seven years. Two swabs of the discharge gave growths of *Shigella flexneri,* and the condition responded to Sulphaguanidine therapy, but not to penicillin.

197. The typing of *M. tuberculosis* isolated from material removed at post-mortem and biopsy commenced about the middle of the year. The specimens were sent by the Medical Specialist, Tuberculosis Hospital, Kibongoto, and up to the end of the year four typing examinations had been concluded, the organism in each case proving to be a human strain. The investigation is continuing.

198. A large increase in the number of water samples examined was due to the stricter bacteriological control of the Dar es Salaam main supply, and a greater number of samples received from up-country areas. The latter has been made possible by the expansion of the air services within the Territory.

199. *Return of Specimens—Bacteriology.*

BLOOD CULTURES:

Total number examined	**141**
Salm. typhi isolated from	5
Salm. chandans isolated from ...	1
B. faecalis alkaligenes isolated from ...	6
Staphylococcus pyogenes isolated from	1

FAECES:

Total number examined	**372**
Salm. typhi isolated from	10
Salm. paratyphi B isolated from ...	9
Salm. paratyphi A isolated from ...	2
Salm. chandans isolated from ...	1
Salm. newport isolated from	1
Salm. adelaide isolated from	1
Salm. rubislaw isolated from	1
Salm. anatum isolated from	1
Salm. waycross isolated from	1
Salm. mgulani (new type) isolated from	1
Sh. flexneri isolated from	32
Sh. sonnei isolated from	12

URINE (FOR ENTERIC ORGANISMS):

Total number examined	**32**
Salm. typhi isolated from	1

URINE (FOR PYROGENIC ORGANISMS):

Total number examined	**142**
B. coli isolated from	54
B. faecalis alkaligenes isolated from ...	10
Ps. pyocyenea isolated from	8
B. proteus isolated from	3
Str. faecalis isolated from	1
Non-haemolytic streptococcus isolated from	1
Staph. pyogenes isolated from... ...	1

SWABS—THROAT AND NOSE:

Total number examined	**77**
C. diphtheriae isolated from	10
Strep. viridans isolated from	5
Strep. pyogenes isolated from ...	4
Staph. pyogenes isolated from... ...	3
Non-haemolytic streptococci isolated from	2
Monilia albicans isolated from ...	1
Bacillus fusiformis and *Trep. vincenti* present in	1

SWABS—SKIN ULCERS:

Total number examined	**3**
Strep. pyogenes isolated from ...	2
Staph. pyogenes isolated from... ...	1
B. proteus isolated from	1

SWABS—CONJUNCTIVAL:

Total number examined	**37**
Staph. pyogenes isolated from ...	2
Koch-Weeks bacillus isolated from ...	1
Morax-Axenfeld bacillus isolated from	1
Strep. pyogenes isolated from ...	1
Strep. pneumoniae isolated from ...	1

SWABS—VAGINAL, CERVICAL AND URETHRAL:

Total number examined	**66**
Strep. viridans isolated from	3
N. gonorrhoeae isolated from	2
Sh. flexneri isolated from	2
Strep. pyogenes isolated from	2
Ps. pyocyanea isolated from	2
Staph. pyogenes isolated from	1
Monilia albicans isolated from	1
Bacillus fusiformis and *Trep. vincenti* present in	1

PUS:

Total number examined	**41**
Staph. pyogenes isolated from	**16**
Strep. pneumoniae isolated from	3
B. coli isolated from	3
Strep. pyogenes isolated from	2
Strep. faecalis isolated from	2
B. proteus isolated from	2
Ps. pyocyanea isolated from	2
Past. pestis isolated from	1
B. faecalis alkaligenes isolated from	1
Strep. viridans isolated from	1
Non-haemolytic streptocci isolated from	1
M. tuberculosis present in	1

CEREBRO-SPINAL FLUIDS:

Total number examined	**91**
Strep. pneumoniae isolated from	13

PLEURAL FLUIDS:

Total number examined	**57**
Salm. chandans isolated from	7
Salm. typhi isolated from	1
Strep. pyogenes isolated from	1
Non-haemolytic streptococcus isolated from	1
Inoculated into guinea-pigs	7
Guinea-pigs positive T.B.	1

PERICARDIAL FLUIDS:

Total number examined	**7**
Salm. chandans isolated from	1

JOINT FLUIDS:

Total number examined	**31**
Staph. pyogenes isolated from	2
B. faecalis alkaligenes isolated from	2
Strep. pyogenes isolated from	1
Strep. pneumoniae isolated from	1

SPUTA:

Total number examined	**4**
Strep. mucosus (almost pure culture)	1
M. tuberculosis present	1

GLANDS FOR T.B. TYPING:

Total number examined	**4**
Human type	4

OTHER EXAMINATIONS:

(i) *Foodstuffs for cleanliness and/or sterility tests:*

Total number examined	**82**
Milk for *M. tuberculosis* (all negatives)	54
Canned meat	14
Ice cream	11
Mineral Waters	2
Rice	1

(ii) *Miscellaneous:*

Total number examinations	**40**
Cough plates. *H. pertussis*	8
Tuberculosis glands for typing	8
Mineral water bottle rinses	6
Surgical talc sterility	4
Slides for *B. anthracis*	3
Sewage effluents	2
Swabs from spleen after post-mortem *S. typhi*	2
Laryngeal swabs for *M. tuberculosis*	2
Lungs and Liver, rats—*Past. pestis*	4
Surgical cat-gut, sterility	1

(iii) *Examination of Water:*

Total number examined	**657**
Dar es Salaam main supply, number examined	596
Other sources, number examined	61
Total number of specimens submitted for bacteriological examination	1,884

BIOLOGICAL EXAMINATIONS

(GUINEA PIGS)

EXAMINATIONS FOR T.B.:

Total number of examinations	**42**
Positive	1
Negative	41

DIPHTHERIA VIRULENCE TESTS:

Total number examined	**9**
Positive	8
Negative	1

EXAMINATIONS FOR *P. PESTIS*:

Total number examined	**3**
Positive	1
Negative	1
Inconclusive	1

ROUTINE RAT EXAMINATIONS FOR *P. PESTIS*:

Total number examined (from Township and Port of Dar es Salaam)	**2,997**
Negative	2,997

200. *Serology.*

(i) WASSERMANN AND KAHN REACTIONS:

Sera examined by both Wassermann and Kahn Tests:

Number of sera examined	**2,904**
W.R. Positive	893
Kahn Positive	
W.R. Negative	1,643
Kahn Negative	

The agreement between the Wassermann and Kahn tests was approximately 88·4%

Sera examined by Kahn Test only:

Number of sera examined	**527**
Positive	181
Negative	313
Doubtful	33

Sera examined by Wassermann Test only:

Number of sera examined	**30**
Positive	13
Negative	12
Doubtful	5

C.S.F. examined by Wassermann Test:

Number examined	**99**
Positive	16
Negative	77
Doubtful	6
Total number of sera and cerebro-spinal fluids examined by Wassermann and Kahn Reactions	3,560

(ii) Agglutination Tests (Widals):

Total number of specimens examined	**444**
Presumptive positive results:—	
Typhoid	70
Paratyphoid A.	3
Brucellosis	6
Tick Typhus	12
Negative	353

(iii) Paul Bunnell Reaction:

Number of specimens examined	2
Negative	2

201. *Total number of Specimens examined during 1948.*

(OTHER THAN AT LABORATORY HEADQUARTERS)

Sewa Haji Laboratory	32,828
Tanga Laboratory...	21,414
Maternity Clinic, Dar es Salaam	6,779
Mwanza	25,864
Musoma	19,509
Bukoba	11,878
Tabora	23,705
Dodoma	9,502
Morogoro	12,478
Iringa	13,348
Mbeya	10,607
Lindi	11,875
Arusha	15,365
Moshi	13,229

XXII.—NEW LEGISLATION

202. The Mental Diseases (Amendment) Ordinance, 1948. Ordinance No. 27 of 1948.

The Infectious Disease (Declaration of Infected Area) Order, 1948. Government Notice No. 72 of 1948.

The Mental Diseases Rules, 1948. Government Notice No. 99 of 1948.

The Master and Native Servants (Medical Care) (Amendment) Regulations, 1948. Government Notice No. 100 of 1948.

The Dangerous Drugs (Application) Order, 1948. Government Notice No. 103 of 1948.

The Mental Hospitals (Establishment) (Amendment) Order, 1948. Government Notice No. 108 of 1948.

The Infectious Disease (Declaration of Infected Area) (Revocation) Order, 1948. Government Notice No. 154 of 1948.

The Poisons List (Amendment) Order, 1948. Government Notice No. 169 of 1948.

The Master and Native Servants (General Care) (Amendment) Regulations, 1948. Government Notice No. 189 of 1948.

The Master and Native Servants (Medical Care) (Amendment) Regulations, 1948. Government Notice No. 190 of 1948.

The Poisons List (Amendment) (No. 2) Order, 1948. Government Notice No. 195 of 1948.

The Master and Native Servants (Medical Care) (Amendment) (No. 3) Regulations, 1948. Government Notice No. 258 of 1948.

XXIII.—PUBLICATIONS BY MEMBERS OF THE STAFF

203. "Malaria in Kigenzi, Uganda", by P. C. C. Garnham, D. Bagster-Wilson and M. E. Wilson. (*Journal of Tropical Medicine*, 51. 156).

Dar es Salaam,
March, 1950

P. A. T. Sneath,
Director of Medical Services

TABLE 1—ESTABLISHMENT

Posts	ESTABLISHMENT				Strength 31st December 1948			
	African	Asian	European	Total	African	Asian	European	Total
Headquarters Administration								
1. Director of Medical Services, Deputy Director, Assistant Director and Senior Medical Officers	—	—	11	11	—	—	8	8
2. Secretary, Medical Department	—	—	1	1	—	—	1	1
3. Matron-in-Chief	—	—	1	1	—	—	1	1
4. Chief Office Superintendent ...	—	—	1	1	—	—	1	1
5. Librarian, Stenographers, Office Assistant, Clerks	47	31	3	81	33	31	1	65
Stores and Pharmaceutical Services								
6. Pharmacists	—	—	6	6	—	—	6	6
7. Stores Accountant and Stores Assistants	3	2	1	6	1	2	1	4
Hospital and Health Services								
8. Specialists, Medical Officers, Medical Officers of Health, Women and Temporary Medical Officers	—	—	57	57	—	—	40	40
9. Senior Assistant Surgeons, Assistant Surgeons, Sub-Assistant Surgeons, and African Assistant Medical Officers	6	65	—	71	7	55	—	62
10. Hospital Assistants	142	—	—	142	105	—	—	105
11. Matrons, Nursing Sisters, Temporary Nursing Sisters, Male Nurses	—	—	79	79	—	—	66	66
12. Physiotherapists and Physiotherapists Assistants	4	—	3	7	—	—	2	2
13. Assistant Nurses, Nursing Auxiliaries	100	15	—	115	36	2	—	38
14. Compounders and Pharmaceutical Assistants	7	13	—	20	2	12	—	14
15. Hospital Administration : Superintendent of Hospitals, Housekeeper, Stewards, Drivers Mechanics	23	—	4	27	14	—	4	18
16. Woman Nutrition Officer ...	—	—	1	1	—	—	1	1
17. Health Inspectors	1	—	36	37	1	—	17	18
18. Health Visitors	—	—	16	16	—	—	5	5
19. African Sanitary Inspectors ...	140	—	—	140	109	—	—	109
Dental Services								
20. Senior Dental Surgeon, Dental Surgeons	—	—	4	4	—	—	4	4
21. Dental Mechanics	—	—	2	2	—	—	2	2
22. Dental Assistants	6	—	—	6	—	—	—	—
Malaria								
23. Specialist, Biologist	—	—	2	2	—	—	2	2
24. Malaria Field Assistants, Anti-Mosquito Supervisors, African Malaria Control Assistants ...	10	7	3	20	6	6	1	13

TABLE 1—ESTABLISHMENT (*contd.*)

Posts	ESTABLISHMENT				Strength 31st December 1948			
	African	Asian	European	Total	African	Asian	European	Total
Mental Services								
25. Specialist	—	—	1	1	—	—	1	1
26. Male and Female Mental Nurses and Nurses	—	2	8	10	—	2	7	9
27. Handicraft Instructor	1	—	—	1	1	—	—	1
Tuberculosis Services								
28. Specialist	—	—	1	1	—	—	1	1
29. Nurses	—	—	1	1	—	—	1	1
30. Industrial Instructors	—	—	1	1	—	—	1	1
Sleeping Sickness								
31. Specialist	—	—	1	1	—	—	1	1
Laboratory Services								
32. Pathologists and Biologists ...	—	—	3	3	—	—	2	2
33. Laboratory Superintendents ...	—	—	3	3	—	—	3	3
34. Laboratory Assistants	32	—	—	32	24	—	—	24
X-Ray								
35. Radiological Technician and Radiographic Assistant ...	—	1	1	2	—	1	1	2
Training								
36. Medical Instructor	—	—	1	1	—	—	1	1

TABLE 2—NEWLY APPOINTED OFFICERS ARRIVED DURING 1948

Name	Appointment	Date of Arrival	Remarks
Dr. D. Currie, M.B., B.Ch. (Cantab.)	Medical Officer	2.1.48	
Dr. E. N. Emmerson, M.R.C.S. (Eng.), L.R.C.P. (Lond.), D.T.M. & H. (Eng.)	Medical Officer	24.1.48	
Dr. W. J. McGinness, M.B., Ch.B. (St. Andrew's)	Medical Officer	7.3.48	
Dr. R. G. Drummond, M.B., Ch.B. D.P.H. (Edin.)	Medical Officer	24.1.48	
Dr. J. A. Ward, M.R.C.S. (Eng.), L.R.C.P. (Lond.)	Medical Officer	21.1.48	
Dr. J. C. McNeilly, M.B.E., B.A., M.B., B.Ch., B.A.O. (Dublin)	Medical Officer	7.4.48	
Dr. J. Przeworski, M.D. (Cracow)	Medical Officer	1.9.48	On Agreement.
Dr. A. G. Poulsen-Hansen, M.B., B.S. (Copenhagen)	Medical Officer	17.10.48	On Agreement.
Dr. R. G. P. Heard, B.A., M.B., B.Ch., B.A.O. (Dublin)	Medical Officer	8.12.48	
Mrs. M. E. Wilson, M.B., Ch.B. (Birm.)	Medical Officer	1.4.48	Temporary.
Mr. J. Phipps, M.Sc. (Lond.), D.I.C.	Biologist	3.6.48	
Mr. H. Woodgate, L.D.S., R.C.S. (Eng.), B.D.S. (Lond.)	Dental Surgeon	6.10.48	
Mr. H. P. Britten, L.D.S. (Birm.)	Dental Surgeon	3.11.48	
Miss M. A. Jarvis	Physiotherapist	18.8.48	
Mr. R. Darwell-Stone	Radiological Technician	24.5.48	
Mr. B. G. Quinn, M.P.S.	Assistant Pharmacist	18.8.48	
Mr. D. G. Breed	Dental Mechanic	7.3.48	
Mr. K. G. Rapley	Health Inspector	26.2.48	
Mr. A. J. Salter	Health Inspector	24.5.48	
Mr. J. D. Nickells	Health Inspector	9.7.48	
Mr. B. C. Richards	Health Inspector	15.10.48	
Mr. W. H. G. Lack	Health Inspector	20.11.48	
Mr. A. R. Price	Health Inspector	20.11.48	
Mr. G. Smith	Male Mental Nurse	3.11.48	
Miss B. D. Vicary	Woman Administrative Assistant	12.3.48	Seconded from Provincial Administration.
Miss M. Haworth	Woman Administrative Assistant	7.3.48	Seconded from Provincial Administration.
Mrs. H. E. Collins	Woman Administrative Assistant	27.3.48	Seconded from Provincial Administration.
Mrs. H. M. Jones	Hospital Secretary	15.11.48	Temporary.
Mr. W. A. Curry	Hospital Steward	20.11.48	
Mr. A. J. Slatter	Malaria Field Assistant	18.9.48	

Fifteen Nursing Sisters arrived for duty during the year.

TABLE 3—PROMOTIONS AND APPOINTMENTS

Name	From	To	Effective Date
Dr. K. Edmundson	S.M.O.	A.D.M.S.	14.11.47
Dr. G. A. MacGregor	M.O.	S.M.O.	9.2.48
Dr. W. J. M. Evans	M.O.	S.M.O.	1.12.48
Dr. G. A. Wilson	M.O.	Specialist	3.2.48

TABLE 4—HONOURS

Mathew Nyirenda, African Hospital Assistant—British Empire Medal.

TABLE 5—ACTING APPOINTMENTS AND REVERSIONS

Name	Substantive Appointment	Acting Appointment	Effective Date	Date of Reversion
Dr. A. McKenzie	D.D.M.S.	D.M.S.	29.1.48	24.9.48
Dr. K. Edmundson	A.D.M.S.	D.D.M.S.	29.1.48	—
Dr. W. J. M. Evans	M.O.	A.D.M.S.	9.6.47	30.11.48
Dr. G. A. MacGregor	M.O.	S.M.O.	17.11.47	8.2.48
	S.M.O.	A.D.M.S.	6.12.48	—
Dr. W. L. Lister	M.O.	S.M.O.	9.8.47	6.1.48
Dr. H. Ehrlich	M.O.	S.M.O.	1.1.48	—
Mr. W. A. Willox	S.H.I.	C.H.I.	1.11.47	3.3.48
Mr. I. S. Rutter	Dental Surgeon	S.D.S.	9.4.48	4.11.48
Dr. J. A. Ward	M.O.	Specialist	3.3.48	1.9.48
Dr. F. Bell	M.O.	Specialist	9.11.48	—
Dr. G. A. Wilson	M.O.	Specialist	3.8.47	2.2.48
Miss G. R. Ibbs	Matron, Grade I	M.I.C.	23.12.48	—

TABLE 6—RETIREMENTS, RESIGNATIONS, ETC.

Name	Appointment	Date of Leaving Tanganyika	Remarks
Dr. B. O. Wilkin, O.B.E.	Senior Medical Officer	1.6.48	Leave pending retirement
Dr. H. G. Calwell	Medical Officer	16.11.48	Leave pending retirement
Dr. T. H. White	Medical Officer	18.11.47	Leave pending resignation.
Dr. N. A. Duncan	Medical Officer	14.12.48	Leave pending resignation.
Dr. (Miss) M. D. Miller	Woman Medical Officer	8.11.47	Leave pending resignation.
Dr. J. P. Lane	Medical Officer	17.1.48	Leave pending resignation.
Dr. H. R. Hudd	Medical Officer	20.11.48	Transferred to Uganda.
Mr. L. B. Hilton	Dental Surgeon	30.1.48	Resignation.
Mr. W. A. Willox	Senior Health Inspector	15.10.48	Leave pending retirement
Mr. O. J. Lodge	Health Inspector	25.10.48	Transferred to Fiji.
Miss Q. C. Brown	Physiotherapist	27.11.48	Resignation.
Mrs. N. E. Russell	Woman Administrative Assistant	8.3.48	Leave pending resignation.
Mr. E. A. T. Blake	Malarial Field Assistant	21.9.48	Pending termination of appointment.
Mr. L. A. Jones	Steward	12.2.48	Leave pending resignation.

Seven Nursing Sisters left the Service during the year.

TABLE 7—MEDICAL AND DENTAL PRACTITIONERS RESIDENT ON 31st DECEMBER, 1948

PROVINCE	GOVERNMENT SERVICE				NON-GOVERNMENT						
	European	Asian	African	R. or L.	European	Asian	R. or L.	RC.	M.	I.	PP.
Central	4	5	—	4 5	23+1D	1	23+1D 1	1	4	18+1D	1
Eastern	24+2D	12	2	26+2D 12	13+1D	15	26+1D 2	—	2	4	22+1D
Lake	9	9	1	12 7	4	3	5 2	—	3	2	2
Northern	7	6	—	7 6	11+1D	1	9+1D 3	3	1	2	6+1D
Southern	1	5	—	3 3	12+1D	2	12+1D 2	—	5	7+1D	2
Southern Highlands	4	4	1	4 5	4	1	3 2	—	1	1	3
Tanga	9+1D	9	—	12+1D 6	15	3	17 1	—	3	6	9
Western	5	6	1	6 6	3+1D	1	4+1D	—	1	2+1D	1
Total ...	63+3D	56	*5	74+3D 50	85+5D	27	99+5D 13	4	20	42+3D	46+2D

*Two further African Assistant Medical Officers are attending a course in the United Kingdom.

R—Registered.
L—Licensed.
D—Dental Surgeon.
RC—Refugee Camp.

M—Mission.
I—Employed in Industry.
PP—Private Practice.

TABLE 8—BEDS AND PATIENTS

GOVERNMENT HOSPITALS AND OTHER MEDICAL CENTRES

PROVINCE	DISTRIBUTION OF BEDS								IN-PATIENTS									OUT-PATIENTS		
	Number of Beds at 31st December, 1948				Daily Average Occupied				Number Admitted during the Year			Number discharged during the Year			Deaths			Total New Cases		
	European	Asian	African	Total	European	Asian	African	Total	European	Non-European	Total	European	Non-European	Total	European	Non-European	Total	European	Non-European	Total
Central	–	10	256	266	–	1·00	174·90	175·90	–	5,058	5,058	–	4,886	4,886	–	183	183	596	90,278	90,874
Eastern	47	51	755	853	26·06	33·38	598·56	658·00	988	13,093	14,081	976	12,328	13,304	17	657	674	3,748	169,485	173,233
Lake	10	22	670	702	4·25	2·45	439·88	446·58	124	12,243	12,367	120	11,835	11,955	1	474	475	785	187,584	188,369
Northern	27	10	482	519	6·91	1·31	474·03	482.25	416	11,749	12,165	406	11,131	11,537	6	568	574	2,329	124,942	127,271
Southern	5	5	241	251	1·53	1·05	161·63	164·21	107	3,557	3,664	106	3,437	3,543	1	110	111	805	86,906	87,711
Southern Highlands	23	13	309	345	7·91	1·01	249·75	258·67	346	6,568	6,914	342	6,355	6,697	7	227	234	1,223	118,433	119,656
Tanga	18	18	579	615	14·00	–	471·43	485·43	377	8,848	9,225	368	8,228	8,596	6	527	533	1,911	98,726	100,637
Western	9	10	378	397	3·09	3·36	237·64	244·09	151	6,026	6,177	151	5,586	5,737	1	335	336	630	140,933	141,563
Total ...	139	139	3,670	3,948	63·75	43·56	2,807·82	2,915·13	2,509	67,142	69,651	2,469	63,786	66,255	39	3,081	3,120	12,027	1,017,287	1,029,314

NOTE—These figures include Maternity and Child Welfare Services, but are exclusive of the Mental Hospitals at Dodoma and Lutindi, and of the Tuberculosis Hospital/Sanatorium, Kibongoto, details of which are given in the body of the Report.

TABLE 9—MISSION MEDICAL SERVICES

Province	Number of Staff						Beds			In-patients Treated Yearly							Out-patients—New Cases			
										Males			Females							
	Medical Officers	Hospital Assts. and Dispensers	State Registered Nurses	Unregistered Nurses (European)	Certificated Nurses (African)	Nursing Orderlies and Dressers (Uncertificated)	European	Non-European	Total	European	Asian	African	European	Asian	African	Total	European	Asian	African	*Total
CENTRAL	4	2	17	2	15	72	4	312	316	4	10	2,371	6	6	4,977	7,374	27	78	93,292	93,397
EASTERN	2	3	3	–	–	–	6	278	284	8	–	2,024	6	–	1,628	3,666	–	–	20,025	20,025
LAKE	3	7	16	17	1	87	16	613	629	18	187	1,266	24	148	3,456	5,199	77	1,309	46,038	47,424
NORTHERN	2	–	10	2	–	69	–	204	204	–	9	1,861	–	7	2,002	3,879	–	82	75,213	75,295
SOUTHERN	4	21	30	4	8	129	34	1,174	1,208	87	102	10,632	69	153	10,620	21,663	165	280	86,794	87,239
SOUTHERN HIGHLANDS	2	–	3	3	7	2	1	179	180	10	–	762	5	8	666	1,451	50	100	30,563	30,713
TANGA	2	27	11	2	1	48	6	411	417	7	20	624	12	26	3,480	4,169	44	87	78,793	78,924
WESTERN	1	4	17	6	3	48	–	261	261	–	18	1,643	–	21	1,600	3,282	21	581	226,419	227,021
Totals ...	20	64	107	36	35	455	67	3,432	3,499	134	346	21,283	122	369	28,429	50,683	384	2,517	657,137	660,038

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*In a number of cases, figures giving division by race are not available, and the number of New Cases has, in these instances, been reported in the "Total" Column only.

TABLE 10—DISTRIBUTION OF MISSION MEDICAL AND NURSING STAFF BY NATIONALITIES

PROVINCE	British	American	Belgian	Canadian	Danish	Dutch	French	German	Italian	Norwegian	Polish	Swedish	Swiss
CENTRAL	9	6	–	–	–	–	–	–	8	–	–	–	–
EASTERN	1	–	–	–	–	–	–	–	–	–	–	–	–
LAKE	3	16	–	2	2	3	–	2	–	1	–	2	–
NORTHERN	5	–	–	–	–	–	–	1	–	–	2	–	–
SOUTHERN	18	1	–	–	–	–	–	17	–	–	–	–	3
SOUTHERN HIGHLANDS ...	1	1	–	–	1	–	–	2	2	–	–	–	3
TANGA	11	3	–	–	–	–	–	1	–	–	–	–	–
WESTERN	1	–	1	–	4	4	1	5	–	–	–	–	9
Totals ...	49	27	1	2	7	7	1	28	10	1	2	2	15

TABLE 11—NATIVE AUTHORITY MEDICAL SERVICES

PROVINCE	Number of Dispensaries	STAFF		Total New Cases Attending during 1948	Beds (if any)
		African Medical Auxiliaries	Tribal Dressers		
CENTRAL	40	1	41	168,884	85
EASTERN	66	16	58	262,715	—
LAKE	94	74	42	806,703	—
NORTHERN	43	7	39	119,916	30
SOUTHERN	25	—	32	85,659	46
SOUTHERN HIGHLANDS	50	48	4	196,640	—
TANGA	37	4	34	73,608	23
WESTERN	47	6	43	233,072	48
Totals ...	402	156	293	1,947,197	232

NOTE.—Complete records of the number of new cases attended in Tanga Province are not available, and the actual figure is therefore higher than that shown.

TABLE 12—GENERAL DISEASES

In- and Out-Patients—Government Hospitals and Dispensaries

DISEASES	Cases In-Patients	Deaths In-Patients	Cases Out-Patients	Total Cases In- and Out-Patients	Group Totals Cases	Group Totals Deaths	Percentage of Group to Total Cases	Percentage of Group to Total Deaths
Group I.—Infective and Parasitic Diseases								
Typhoid and Paratyphoid Fevers	282	34	183	465				
Plague	1	1	–	1				
Undulant Fever	11	5	3	14				
Cerebro-Spinal Meningitis	259	122	16	275				
Malignant Pustule and Anthrax	129	8	125	254	(a) Blood Inoculation Group			
Tuberculosis of the Respiratory System	1,298	228	3,301	4,599	142,622	327	13·38	10·48
Other forms of Tuberculosis :								
(a) Bones and Joints	87	13	159	246				
(b) Glands and Intestines	584	11	1,551	2,135				
Leprosy	114	4	391	505	(b) Intestinal and Excremental Group			
Dysentery : (a) Amoebic	254	18	581	835				
(b) Bacillary	246	16	690	936	76,153	258	7·14	8·27
(c) Undefined	593	32	3,111	3,704				
Malaria : (a) Benign Tertian	35	–	760	795				
(b) Quartan	34	2	163	197				
(c) Subtertian	7,778	221	51,645	59,423	(c) Surface Inoculation and Droplet Infection Group			
(d) Undefined	5,938	37	71,674	77,612				
(e) Blackwater Fever	23	5	–	23				
Trypanosomiasis	305	28	39	344	136,477	433	12·79	13·88
Venereal Diseases : (a) Syphilis	1,943	33	37,539	39,482				
(b) Gonorrhoea	2,523	9	21,493	24,016				
(c) Other Venereal Diseases ...	319	1	2,787	3,106	(d) Other Infectious and Protozoal Diseases			
Relapsing Fever	1,223	33	3,004	4,227				
Yaws	685	7	61,263	61,948				
Smallpox	87	5	78	165	10,409	104	0·98	3·33
Ankylostomiasis	2,746	133	23,544	26,290				
Schistosomiasis	723	14	14,036	14,759				
Other Helminthic Diseases	635	5	28,515	29,150				
Other Infective or Parasitic Diseases	1,413	97	8,742	10,155	365,661	1,122	34·29	35·96
Group II.—Cancer and Other Tumours								
Cancer of the Liver and Biliary Passages	41	18	11	52				
Other Malignant Tumours	167	42	38	205				
Non-Malignant Tumours	317	15	291	608				
Unspecified Tumours	146	7	174	320	1,185	82	0·11	2·63

TABLE 12—GENERAL DISEASES—*contd.*

In- and Out-Patients—Government Hospitals and Dispensaries

DISEASES	Cases In-Patients	Deaths In-Patients	Cases Out-Patients	Total Cases In- and Out-Patients	Group Totals		Percentage of Group to Total Cases	Percentage of Group to Total Deaths
					Cases	Deaths		
Group III.—Nutritional, Glandular and General Diseases								
Rheumatic Conditions	850	3	31,429	32,279				
Diabetes	52	2	356	408				
Diseases of the Endocrine Glands	38	1	121	159				
Scurvy	9	1	48	57				
Beriberi	18	–	6	24				
Pellagra	6	2	26	32				
Other Deficiency Diseases	189	27	1,862	2,051	35,010	36	3·28	1·15
Group IV.—Diseases of the Blood and Blood-forming Organs								
Anæmias : (a) Hyperchromic	195	25	1,011	1,206				
(b) Hypochromic	391	51	5,814	6,205				
Other Diseases of the Blood and Blood-forming Organs	224	22	4,342	4,566	11,977	98	1·11	3·14
Group V.—Acute and Chronic Poisoning	38	3	12	50	50	3	0·01	0·09
Group VI.—Diseases of the Nervous System and Sense Organs								
Mental Diseases	111	3	95	206				
Trachoma	109	–	1,847	1,956				
Other Diseases of Vision	1,195	5	53,301	54,496				
Diseases of the Ear and Mastoid	251	8	16,277	16,528				
Other Diseases of the Nervous System	735	55	22,468	23,203	96,389	71	9·03	2·28
Group VII.—Diseases of the Circulatory System								
Heart Disease	243	98	638	881				
Other Diseases of the Circulatory System	297	54	2,240	2,537	3,418	152	0·31	4·87
Group VIII.—Diseases of the Respiratory System								
Bronchitis	1,622	43	94,814	96,436				
Pneumonia	4,575	416	3,220	7,795				
Other Diseases of the Respiratory System	1,132	61	40,108	41,240	145,471	520	13·63	16·67
Group IX.—Diseases of the Digestive System								
Diarrhoea and Enteritis : (a) under 2 years	218	33	9,777	9,995				
(b) 2 years and over	1,238	114	15,907	17,145				
Hernia, Intestinal Obstruction	1,113	64	703	1,816				
Cirrhosis of the Liver	295	69	501	796				
Other Diseases of the Digestive System	2,238	88	113,529	115,767	145,519	368	13·64	11·79

TABLE 12—GENERAL DISEASES—*contd.*

In- and Out-Patients—Government Hospitals and Dispensaries

DISEASES	Cases In-Patients	Deaths In-Patients	Cases Out-Patients	Total Cases In- and Out-Patients	Group Totals Cases	Group Totals Deaths	Percentage of Group to Total Cases	Percentage of Group to Total Deaths
Group X.—Diseases of the Urinary and Genital Systems								
(Not Venereal or connected with Pregnancy or the puerperium)								
Diseases of the Kidney, Ureter and Bladder	500	69	2,435	2,935				
Diseases of the Male Genital Organs	2,041	30	4,213	6,254				
Diseases of the Female Genital Organs	775	11	4,223	4,998	14,187	110	1·32	3·53
Group XI.—Diseases of Pregnancy								
Deliveries	3,169	35	156	3,325				
Abortions and Miscarriages	408	12	173	581				
Toxæmias of Pregnancy	164	12	761	925				
Other Conditions of the Puerperal State	464	51	887	1,351	6,182	110	0·56	3·53
Group XII.—Diseases of the Skin and Cellular Tissue								
Ulcers	5,905	35	92,951	98,856				
Other Skin Conditions	3,079	49	47,453	50,532	149,388	84	14·01	2·69
Group XIII.—Diseases of the Bones and Organs of Locomotion								
Diseases of Bones, etc. (excluding T.B.)	1,124	25	16,542	17,666	17,666	25	1·64	0·80
Groups XIV and XV.—Congenital Malformations and Diseases Peculiar to the First Year of Life								
Malformations, Premature Birth, and Injury at Birth ...	28	9	161	189				
Congenital Debility	42	18	374	416				
Diseases Peculiar to the First Year of Life	111	5	85	196	801	32	0·07	1·03
Group XVI.—Senility and Old Age	52	19	83	135	135	19	0·01	0·61
Group XVII.—Violence and External Causes								
Suicide	21	5	44	65				
Homicide	825	26	618	1,443				
Accidents	5,754	212	58,909	64,663	66,171	243	6·21	7·79
Group XVIII.—Ill-defined Causes	704	45	6,849	7,553	7,553	45	0·77	1·44
Totals ...	73,487	3,120	993,276	1,066,763	1,066,763	3,120	100·00	100·00

TABLE 13—HEALTH OF PRISONERS

Province	Daily Average in Prison	Number Admitted to Hospital	Daily Average in Hospital	Daily Average on Sick List	Deaths
CENTRAL	721·50	262	0·95	27·50	7
EASTERN	1,676·55	1,067	34·74	33·968	4
LAKE	860·50	388	8·146	32·93	20
NORTHERN	382·31	202	0·04	9·50	5
SOUTHERN	334·00	27	0·68	3·63	1
SOUTHERN HIGHLANDS	241·20	68	0·90	4·90	2
TANGA	533·26	237	5·50	29·37	3
WESTERN	806·60	189	2·30	44·07	7
Totals ...	5,555·92	2,440	53·26	185·86	49

TABLE 14—VITAL STATISTICS: POPULATION

PROVINCE	EUROPEAN			ASIAN			AFRICAN			Grand Total
	Males	Females	Total	Males	Females	Total	Males	Females	Total	
Central	839	562	1,401	2,363	1,874	4,237	384,000	423,000	807,000	812,638
Eastern	1,473	1,102	2,575	12,259	9,711	21,970	447,000	465,000	912,000	936,545
Lake	538	348	886	4,697	3,721	8,418	777,000	872,000	1,649,000	1,658,304
Northern	2,198	3,764	5,962	2,892	2,318	5,210	289,000	286,000	575,000	586,172
Southern	518	215	733	1,572	1,294	2,866	423,000	466,000	889,000	892,579
Southern Highlands	973	1,279	2,252	1,543	1,202	2,745	404,000	457,000	861,000	865,997
Tanga	754	628	1,382	4,808	3,843	8,651	210,000	171,000	381,000	391,033
Western	555	299	854	3,082	2,333	5,415	437,000	493,000	930,000	936,269
Totals ...	7,848	8,197	16,045	33,216	26,296	59,512	3,371,000	3,633,000	7,004,000	7,079,557

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